TXT 990 14180 GT

GROUNDWATER
SERVICES, INC.

January 31, 2001
GSI Job No. G-2348

Texas Natural Resource Conservation Commission
P. O. Box 13087
Austin, Texas 78711-3087

Midland

Attn: Mr. John Wilder, Project Manager, Team III, Mail Code 127
Corrective Action Section, Remediation Division

Via Fedex

Re: Monitoring report for near-surface groundwater;
Former Baroid/Shaffer Plant, 12950 W. Little York, Houston, TX.
Solid Waste Registration No. 32145.

Dear Mr. Wilder:

Attached please find two copies of the report titled Groundwater Monitoring Report, Near-Surface Sand Unit: July 2000 through January 2001, dated January 31, 2001. If you need additional information, please contact me at (713) 522-6300 or call the Halliburton project manager, Mr. Mark Spencer, at (713) 676-7577.

Sincerely,

James A. Kearley
Environmental Engineer

Attachment (2 copies)

2211 Norfolk, Suite 1000 • Houston, Texas 77098-4044 • Telephone **713/522-6300** • *FAX 713/522-8010*

GROUNDWATER
SERVICES, INC.

January 31, 2001
GSI Job No. G-2348

cc:

Mr. Mark Spencer
Halliburton Energy Services, Inc.
Houston, Texas

Ms. Nicole Bealle
TNRCC, Region 12
Houston, Texas

Mr. Gary Miller
EPA
Dallas, Texas

Mr. Curry Haley
ENTRIX, Inc.
Houston, Texas

338253

GST

GSI Job No. G-2348
January 31, 2001

GROUNDWATER
SERVICES, INC.

GROUNDWATER MONITORING REPORT, NEAR-SURFACE SAND UNIT: July 2000 through January 2001

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant, Houston, Texas

TNRCC Solid Waste Registration No. 32145
EPA ID No. TXT490014180

1.0 INTRODUCTION

1.1 Background Information

Previous investigations conducted by Dresser Industries in the vicinity of the former Baroid/Shaffer plant in Houston, Texas, have identified a plume of VOC-affected groundwater within a near-surface sand unit extending from approximately 14 to 48 feet below ground surface (BGS). Halliburton Energy Services, Inc., (Halliburton), now has responsibility for environmental monitoring and site closure activities at the former Baroid/Shaffer plant, following the corporate merger of Dresser Industries and Halliburton.

A groundwater recovery and treatment system has been operated at the site since May 1997. The system is operated for hydraulic containment and remediation of near-surface VOC-affected groundwater. The primary objective is to hydraulically control (i.e., "capture") that portion of the plume that is present beneath the former Baroid/Shaffer plant and the adjacent Halliburton property. At present the recovery system is operated at a combined flowrate ranging from approximately 32 to 35 gpm. As of January 19, 2001, the system had removed and treated approximately 56.3 million gallons of near-surface groundwater.

This report summarizes the results of groundwater monitoring of the near-surface sand unit for the period July 2000 through January 2001.

1.2 Scope of Groundwater Monitoring Activities

A sampling and analysis plan for monitoring groundwater conditions in the near-surface sand unit was submitted to the Texas Natural Resource Conservation Commission (TNRCC) during April 1997. The plan was subsequently revised to include three additional monitoring wells. The sampling and analysis plan includes the following elements:

- Periodic measurement of static water levels in all monitoring wells, piezometers, and recovery wells that are completed within the near-surface sand unit (Figure 1);

- Collection of groundwater samples from nine monitoring wells every six months. The wells to be sampled in these sampling episodes include the following: MW-2, 6, 12, 13, 15, 17, 18, 19, and 20.

- Collection of trip blank and field blank samples to assess sampling precision and potential for sample contamination introduced during field sampling activities;

- Analysis of samples in accordance with EPA Method 624 for the VOC indicator parameters listed on Table 1; and

- Submittal of reports to the TNRCC to include a summary of analytical results, a potentiometric surface map, and discussion regarding observed changes in constituent concentrations.

During the July 2000 – January 2001 reporting period, Halliburton conducted the tasks included in the sampling and analysis plan. In addition, the following tasks were also conducted:

- Collection and analysis of groundwater samples using Geoprobe equipment at six locations at the Halliburton property to better define the southern limit of affected near-surface groundwater.

- Installation and sampling of one monitoring well (MW-23) screened within the near-surface sand unit and located in the southern portion of the Halliburton property.

- Installation and sampling of two monitoring wells (MW-21 and MW-22) screened within the near-surface sand unit and located at an off-site property, in accordance with a TNRCC request.

- Collection and analysis of a groundwater sample from piezometer PZ-2, located at an off-site property. This piezometer is not included in the semiannual sampling program but was sampled in accordance with a request by the property owner.

- Collection and analysis of groundwater samples from MW-11 and MW-16A.

- Collection and analysis of groundwater samples from the six recovery wells.

2.0 SUMMARY OF FIELD PROCEDURES

2.1 Groundwater Sampling Using Geoprobe Equipment

On September 12, 2000, Halliburton collected samples of near-surface groundwater using truck-mounted Geoprobe equipment at six locations, as shown on Figure 3. The purposes of the sampling program were i) to better define the limits of VOC-affected groundwater in the southern portion of the Halliburton property; and ii) to evaluate the suitability of this location for reinjection of treated groundwater from the groundwater recovery and treatment system.

At each Geoprobe location, a point assembly with a series of connecting rods was driven into the ground to the desired depth by the hydraulic hammer on the Geoprobe truck. The point assembly and rods were then withdrawn from the hole, and an aluminum well screen was pushed into the hole to the depth of the water-bearing zone. Teflon tubing was lowered into the temporary well screen, and a peristaltic pump was used to slowly pump water from the well screen to the surface, where a groundwater sample was collected.

To prevent possible cross-contamination between Geoprobe locations, a new length of Teflon tubing was used at each location. After sampling at each location was completed, the well screen was removed from the ground, and the well screen, rods, and point assembly were cleaned using an Alconox and water solution. The hole at each Geoprobe location was filled with bentonite pellets.

A trip blank and a field blank sample were collected during the day to assess sampling precision and the potential for sample contamination introduced during field sampling activities. All collected groundwater samples were stored in a wet ice cooler and shipped within 24 hours of collection to a laboratory for analysis of the VOCs specified on Table 1 in accordance with EPA Method 624.

2.2 Installation of Monitoring Wells

During November 2000, Halliburton installed three additional monitoring wells near the former Baroid/Shaffer plant (Figure 1). Monitoring wells MW-21, MW-22, and MW-23 were installed using a drilling rig equipped with a hollow-stem auger to total depths of 40 ft, 40 ft, and 35 ft below ground surface (bgs), respectively. The wells were constructed using ten feet of two-inch diameter flush-jointed PVC well screen positioned to collect representative groundwater samples from the upper saturated portion of the near-surface sand unit. The monitoring wells were completed with a concrete protective pad at the ground surface and a water-tight manway or a stickup aluminum well protector.

The top-of-casing elevations of the new monitoring wells were surveyed to the nearest 0.01 ft relative to the site benchmark. Well log/as-built diagrams and State of Texas well reports for the monitoring wells are included in Attachment A.

The newly installed monitoring wells were developed by surging and pumping to remove fine sediment and enable collection of representative groundwater samples. All fluids generated during well development were pumped through the groundwater treatment system located at the Halliburton property.

2.3 Site-Wide Static Water Level Survey

A site-wide static water level survey was conducted on November 22, 2000. Static water level measurements from all near-surface wells and piezometers were conducted to the nearest 0.01 foot using an electric water level indicator (Table 2).

2.4 Purging and Sampling of Wells

Purging of the new and existing monitoring wells was conducted prior to sample collection such that a minimum of three casing volumes was purged from each location. All fluids generated during well development were containerized and then pumped through the groundwater treatment system at the Halliburton property. Collection of groundwater samples from the monitoring wells was conducted with dedicated disposable Waterra sampling pumps and/or disposable bailers.

Groundwater samples were collected from the recovery wells at sample ports located at the well head piping. The submersible electric pumps remained in operation during collection of groundwater samples from the recovery wells.

2.5 Laboratory Program

All collected groundwater samples were stored in a wet ice cooler and shipped within 24 hours of collection to Southern Petroleum Laboratories (SPL) in Houston, Texas, for analysis of the volatile organic compounds specified on Table 1. Results of laboratory analyses of groundwater samples collected from the near-surface sand unit are shown on Tables 3 through 6. Total VOC and tetrachloroethene concentrations measured in November 2000 are depicted on Figures 3 and 4.

Figure 5 and Table 7 show changes in constituent concentrations during the period 1996-2000 for selected monitoring wells, including MW-2, MW-6, MW-13, MW-15, and MW-17. Note that Figure 5 plots the following values on a

logarithmic scale: i) the combined concentrations of tetrachloroethene (PCE) and trichloroethene (TCE), which are presumed parent compounds; and ii) combined concentrations of 1,1-dichloroethene (1,1-DCE); total 1,2-DCE; and vinyl chloride, which are presumed daughter compounds.

3.0 SUMMARY OF RESULTS

3.1 Groundwater Flow Conditions and Evidence for Hydraulic Capture

The potentiometric surface map for the November 22, 2000, site-wide static water level survey is shown on Figure 2. The contours have been drawn to show the overall flow field, and high-density contours associated with cones of depression around recovery wells are not shown.

The system has hydraulic control of affected groundwater that is present beneath the former Baroid/Shaffer plant and the adjacent Halliburton property. This is evidenced by i) inspection of potentiometric surface contours shown on Figure 2; ii) significant measured declines in static water levels since May 1997 (see Table 2); iii) analytical results of groundwater samples collected at monitoring wells MW-21 and MW-22 (see Section 3.2.1); and iv) adequate recovery well pumping rates. Note that previous groundwater modeling using a program called Flowpath has demonstrated plume capture for a comparable pumping distribution.

3.2 Key Findings from Laboratory Analytical Results

The following findings are based on review of recent and historical laboratory analytical results.

3.2.1 Off-Site Properties to the North and Northwest of Halliburton Property

At present there are a total of five monitoring wells and one piezometer at off-site properties to the north and northwest (i.e., downgradient) of the Halliburton property. Trace concentrations of VOCs were detected in the groundwater samples collected during November 2000 from MW-21 and MW-22, which are located approximately 80 ft north of recovery wells RW-2 and RW-3. However, these VOC detections were at levels below the Tier 1 Groundwater Protective Concentration Levels (PCLs) for residential land use. Based on inspection of the potentiometric surface map, these wells appear to be within the capture zone of the groundwater recovery system.

During previous groundwater sampling events conducted in September 1999 and May 2000, trace concentrations of one or more VOCs were detected at levels

below Tier 1 groundwater PCLs at MW-18, MW-19, and/or MW-20. However, no VOCs were detected in the groundwater samples collected during November 2000 from those three monitoring wells.

No VOCs were detected in the groundwater sample collected during November 2000 from piezometer PZ-2. The groundwater sample was collected at the request of the property owner to verify the absence of VOCs at that location. Piezometer PZ-2 was formerly a shallow water supply well dating from the 1950s and has been used since November 1996 as a piezometer to measure static water levels within the near-surface sand unit.

Conclusion: There were no exceedances of Tier 1 groundwater PCLs in the groundwater samples collected from the five monitoring wells and piezometer PZ-2 located at off-site properties.

3.2.2 Northern Boundary of Halliburton Property

There are a total of two monitoring wells and four recovery wells located just inside the northern boundary of the Halliburton property. No VOCs were detected in the groundwater samples collected during November 2000 from two of these wells (RW-4 and MW-15). The sample from one well (RW-1) had only trace concentrations of VOCs, at levels below Tier 1 groundwater PCLs. Historically, each of these three wells had concentrations of chlorinated VOCs at levels exceeding the Tier 1 groundwater PCLs.

Groundwater samples collected during November 2000 from the other three wells (RW-2, RW-3, and MW-17) had concentrations of VOCs at levels exceeding Tier 1 groundwater PCLs for 1,1-DCE; PCE; and/or TCE. Total VOC concentrations in the groundwater samples collected from these wells during November 2000 ranged from 0.045 mg/L to 0.081 mg/L. Based on review of historical analytical data, VOC concentrations have generally been decreasing in samples from RW-2 and RW-3. At MW-17, which is located a few feet east of RW-3, VOC concentrations in groundwater samples have fluctuated but have remained generally comparable to the VOC concentrations recorded in samples from RW-3.

Conclusion: At the northern boundary of Halliburton property, VOC concentrations in near-surface groundwater are generally decreasing, and plume size is shrinking.

3.2.3 Central Portion of Affected Groundwater Zone

Historically, the highest concentrations of VOCs have been recorded in samples from monitoring well MW-6, which is located on the western side of the Varco

property. The groundwater sample collected during November 2000 from MW-6 had a total VOC concentration of 1.797 mg/L, with exceedances of Tier 1 groundwater PCLs for 1,1-DCE; cis-1,2-DCE; PCE; TCE; and vinyl chloride. The primary VOC constituent in the sample from MW-6 was cis-1,2-DCE, at a concentration of 1.1 mg/L. The total VOC concentrations measured in the samples collected at MW-6 since May 1998 have ranged from 0.206 mg/L to 1.797 mg/L.

The concentration of total VOCs in the groundwater sample collected during November 2000 from MW-13 was 0.240 mg/L, with Tier 1 groundwater PCL exceedances for 1,1-DCE; PCE; and TCE. During the period May 1998 through November 2000 the total VOC concentrations in samples from this well have ranged from 0.144 to 0.240 mg/L.

Conclusion: The highest total VOC concentrations continue to be recorded in groundwater samples from the central portion of the affected groundwater zone, in the vicinity of MW-6 and MW-13.

3.2.4 Southern Portion of Affected Groundwater Zone

Relatively low concentrations of chlorinated VOCs were detected in the groundwater samples from MW-23 and from several of the Geoprobe groundwater sampling locations. The only VOC detected at concentrations exceeding the Tier 1 groundwater PCLs was tetrachloroethene, with a maximum concentration of 0.018 mg/L in the sample from MW-23.

An elevated concentration of xylene was detected in Geoprobe sample TG-1 at 2 mg/L, below the Tier 1 groundwater PCL of 10 mg/L for xylene. Note that no xylene was detected in any of the other groundwater samples collected from the monitoring wells, recovery wells, or the other Geoprobe locations screened within the near-surface sand unit.

Conclusion: Detections of chlorinated VOCs were confirmed in near-surface groundwater samples from the southern portion of the Halliburton property. Further groundwater sampling and testing is needed to better define the extent of VOC-affected groundwater in this area.

4.0 PLANS FOR ADDITIONAL GROUNDWATER MONITORING

Current plans relating to the near-surface sand unit include the following tasks:

- Installation and sampling of one additional monitoring well at the Emmett Properties tract (formerly known as the Seatrax property) to verify the absence of VOC-affected groundwater northwest of MW-20 (see Figure 6).

- Installation and sampling of two additional monitoring wells in the southern portion of the Halliburton property to better define the extent of VOC-affected groundwater in the area near MW-23 (see Figure 6).

- Submittal of an Affected Property Assessment Report (APAR) and a Response Action Plan to the TNRCC following collection and evaluation of the additional groundwater monitoring data. The Response Action Plan will include a revised Sampling and Analysis Plan for monitoring groundwater conditions within the near-surface sand.

- Continued semi-annual sampling of selected monitoring wells screened within the near-surface sand unit. Wells included in the semi-annual sampling program will include MW-2, MW-6, MW-12, MW-13, MW-15, and MW-17 through MW-23. Reports documenting sampling results will continue to be submitted to the TNRCC.

- Continued operation of the groundwater recovery and treatment system.

GSI Job No. G-2348
January 31, 2001

GROUNDWATER
SERVICES, INC.

GROUNDWATER MONITORING REPORT, NEAR-SURFACE SAND UNIT: July 2000 through January 2001

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
Houston, Texas

Tables

Table Number and Title

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Table 2: Results of Static Water Level Elevation Measurements, Measurement Date: November 22, 2000

Table 3: Results of Groundwater Sampling Analyses: Geoprobe Sampling Locations, September 12, 2000

Table 4: Results of Groundwater Sampling Analyses: Piezometer PZ-2, November 15, 2000

Table 5: Results of Groundwater Sampling Analyses: Monitoring Wells Screened in Near-Surface Sand Unit, March 1996 through November 2000

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Table 7: Results of Groundwater Sampling Analyses: Selected Monitoring Wells, 1992-2000

TABLE 1
SITE-SPECIFIC INDICATOR PARAMETERS FOR GROUNDWATER

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Parameter	Maximum Contaminant Level (mg/L)	Tier 1 Res. GW Protective Conc. Level (mg/L)	EPA Method Number	Target Sample Quantitation Limit (mg/L)
Benzene	0.005	0.005	624	0.001
Toluene	1	1	624	0.001
Ethylbenzene	0.7	0.7	624	0.001
Xylenes	10	10	624	0.001
1,1-Dichloroethane	NA	2.4	624	0.001
1,2-Dichloroethane	0.005	0.005	624	0.001
1,1-Dichloroethene	0.007	0.007	624	0.001
cis-1,2-Dichloroethene	0.07	0.07	624	0.001
trans-1,2-Dichloroethene	0.1	0.1	624	0.001
Tetrachloroethene	0.005	0.005	624	0.001
1,1,1-Trichloroethane	0.2	0.2	624	0.001
Trichloroethene	0.005	0.005	624	0.001
Vinyl Chloride	0.002	0.002	624	0.001

NOTES:
1) Method 624 is referenced in EPA Standard Methods for the Examination of Water and Wastewater, 16th edition.
2) Maximum Contaminant Levels (MCLs) are specified pursuant to Section 141 of the Safe Drinking Water Act. MCLs are defined as the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.
3) Tier 1 Protective Concentration Levels (Tier 1 PCLs) for groundwater are published in the Texas Risk Reduction Program, as cited in 30 TAC 350.
4) NA = No MCL promulgated for this compound.

TABLE 2
RESULTS OF STATIC WATER LEVEL ELEVATION MEASUREMENTS
Measurement Date: November 22, 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Well I.D.	Elevation of Top of Casing (ft., site datum)	May 13, 1997 Static Water Level (ft., site datum)	November 22, 2000 Depth to Water (ft. below TOC)	November 22, 2000 Static Water Level (ft., site datum)	May 13, 1997 - Nov 22, 2000 Change in Static Water Level (ft.)
MW-2	102.46	74.27	30.00	72.46	-1.81
MW-3	100.94	75.82	26.47	74.47	-1.35
MW-4	102.40	74.75	29.08	73.32	-1.43
MW-6	101.68	73.65	30.34	71.34	-2.31
MW-10	103.02	74.24	30.60	72.42	-1.82
MW-11	101.34	72.83	30.71	70.63	-2.20
MW-12	102.70	73.59	31.18	71.52	-2.07
MW-13	100.40	72.94	30.07	70.33	-2.61
MW-14	102.21	74.99	28.86	73.35	-1.64
MW-15	101.46	71.70	32.47	68.99	-2.71
MW-16A	102.64	71.52	33.48	69.16	-2.36
MW-17	101.33	70.40	34.96	66.37	-4.03
MW-18	101.21	NA	34.78	66.43	NA
MW-19	101.28	NA	36.41	64.87	NA
MW-20	101.37	NA	38.11	63.26	NA
MW-21	101.01	NA	33.76	67.25	NA
MW-22	100.88	NA	33.94	66.94	NA
MW-23	103.77	NA	32.19	71.58	NA
PZ-1	103.36	71.37	35.37	67.99	-3.38
PZ-2	102.59	68.73	35.62	66.97	-1.76
RW-2P	104.26	70.72	44.15	60.11	-10.61
RW-3P	101.44	70.34	38.48	62.96	-7.38
RW-4P	103.67	71.89	34.15	69.52	-2.37
RW-5P	102.02	72.39	36.35	65.67	-6.72
RW-6P	102.44	73.12	36.17	66.27	-6.85

Notes
1) Locations of monitoring wells, recovery wells and piezometers are shown on Figure 1.
2) Static water level measurements for monitoring wells MW-18, MW-19, and MW-20 were collected on November 20, 2000.
3) RW-2P through RW-6P are designations for 1" diameter piezometers in annular spaces of recovery well boreholes.
4) TOC = Top of casing. BGS = below ground surface. NM = water level not measured. NA = not applicable.

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TABLE 3
RESULTS OF GROUNDWATER SAMPLING ANALYSES: GEOPROBE SAMPLING LOCATIONS
Sampling Date: September 12, 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		TG-1	TG-2	TG-2 DUP	TG-3	TG-4	TG-5	TG-6	Field Blank	Trip Blank
Sampling Depth Interval (ft)		32-36	32-36	32-36	32-36	32-36	32-36	32-36	—	—
Sampling Date		9/12/00	9/12/00	9/12/00	9/12/00	9/12/00	9/12/00	9/12/00	9/12/00	9/7/00
Analysis Date		9/16/00	9/16/00	9/16/00	9/16/00	9/16/00	9/16/00	9/16/00	9/18/00	9/18/00
Constituent	Tier 1 Res. GW PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	**0.092**	**0.006**	**0.008**	ND	ND	ND	**0.005**	ND	ND
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	**0.007**	**0.003**	**0.003**	ND	ND	ND	**0.002**	ND	ND
cis-1,2-Dichloroethene	0.07	**0.011**	**0.001**	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	**0.005**	**0.006**	**0.007**	**0.002**	ND	ND	**0.003**	ND	ND
1,1,1-Trichloroethane	0.2	**0.005**	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	**0.003**	**0.001**	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	**0.001**	**0.001**	**0.002**	**0.001**	**0.002**	**0.002**	**0.001**	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	2	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		**2.124**	**0.018**	**0.020**	**0.003**	**0.002**	**0.002**	**0.011**	ND	ND

NOTES:
1)All samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L.

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TABLE 4
RESULTS OF GROUNDWATER SAMPLING ANALYSES: PIEZOMETER PZ-2, NOVEMBER 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		PZ-2
Screened Interval (ft, BGS)		—
Sampling Date		11/15/00
Analysis Date		11/17/00
Constituent	**PCL (mg/L)**	**mg/L**
1,1-Dichloroethane	2.4	ND
1,2-Dichloroethane	0.005	ND
1,1-Dichloroethene	0.007	ND
cis-1,2-Dichloroethene	0.07	ND
trans-1,2-Dichloroethene	0.1	ND
Tetrachloroethene	0.005	ND
1,1,1-Trichloroethane	0.2	ND
Trichloroethene	0.005	ND
Vinyl Chloride	0.002	ND
Benzene	0.005	ND
Toluene	1	ND
Ethylbenzene	0.7	ND
Xylenes	10	ND

NOTES:

1) Sample was analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) Trip blank and field blank samples had no constituent concentrations above the sample quantitation limit of 0.001 mg/L.
3) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. ND = Not detected at the sample quantitation limit of 0.001 mg/L.

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TABLE 5
RESULTS OF GROUNDWATER SAMPLING ANALYSES: MONITORING WELLS SCREENED IN NEAR-SURFACE SAND UNIT
Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-2									MW-3	
Screen Depth Interval (ft)		26.5-36.5									23.5-33.5	
Sampling Date		3/29/96	5/13/97	11/12/97	5/4/98	9/15/98	5/20/99	9/28/99	5/30/00	11/16/00	3/28/96	9/14/98
Analysis Date		4/6/96	5/14/97	11/14/97	5/7/98	9/16/98	5/26/99	9/30/99	6/2/00	11/18/00	4/1/96	9/15/98
Constituent	PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	0.011	0.016	0.017	0.004	ND	ND	0.002	0.003	0.004	ND	ND
1,2-Dichloroethane	0.005	A	ND	ND	ND	ND	ND	ND	ND	ND	A	ND
1,1-Dichloroethene	0.007	0.013	0.018	0.019	ND	ND	0.002	0.001	0.002	0.004	ND	ND
cis-1,2-Dichloroethene	0.07	0.055	0.064	0.074	0.018	ND	0.003	0.005	0.018	0.026	ND	ND
trans-1,2-Dichloroethene	0.1	ND	0.002	0.001	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.016	0.018	0.022	0.006	ND	0.003	0.004	ND	0.003	ND	ND
1,1,1-Trichloroethane	0.2	A	ND	ND	ND	ND	ND	ND	ND	ND	A	ND
Trichloroethene	0.005	0.017	0.020	0.022	0.007	ND	0.001	0.002	ND	0.003	ND	ND
Vinyl Chloride	0.002	0.003	0.006	0.009	ND	ND	ND	ND	ND	0.002	ND	ND
Benzene	0.005	ND	ND	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	A	ND	ND	ND	ND	ND	ND	ND	ND	A	ND
TOTAL		0.115	0.144	0.166	0.035	ND	0.009	0.014	0.023	0.042	ND	ND

NOTES:
1) With two exceptions (see Note 2), all samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.
3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
4) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 5
RESULTS OF GROUNDWATER SAMPLING ANALYSES: MONITORING WELLS SCREENED IN NEAR-SURFACE SAND UNIT
Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-4		MW-5	MW-6							
Screen Depth Interval (ft)		23-33		19-29	25-35							
Sampling Date		3/29/96	5/13/97	3/28/96	3/29/96	5/13/97	7/17/97	11/12/97	3/10/98	5/4/98	9/15/98	5/20/99
Analysis Date		4/6/96	5/14/97	4/1/96	4/6/96	5/14/97	7/18/97	11/14/97	3/13/98	5/7/98	9/16/98	5/25/99
Constituent	PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	0.004	0.002	ND	0.190	0.500	0.410	0.100	0.160	0.132	0.140	0.140
1,2-Dichloroethane	0.005	A	ND	A	A	0.010	0.008	ND	0.003	ND	ND	0.003
1,1-Dichloroethene	0.007	0.002	0.003	ND	0.110	0.500	0.240	0.052	0.110	0.073	0.069	0.072
cis-1,2-Dichloroethene	0.07	0.010	0.004	ND	1.400	5.500	2.800	0.550	1.000	0.978	1.000	1.100
trans-1,2-Dichloroethene	0.1	ND	ND	ND	0.007	0.024	0.021	0.003	0.007	ND	0.006	0.006
Tetrachloroethene	0.005	0.003	ND	ND	0.075	0.220	0.200	0.047	0.100	0.111	0.084	0.120
1,1,1-Trichloroethane	0.2	A	ND	A	A	0.014	0.014	ND	ND	ND	ND	0.005
Trichloroethene	0.005	0.001	0.001	ND	0.150	0.420	0.290	0.048	0.095	0.124	0.080	0.090
Vinyl Chloride	0.002	ND	ND	ND	0.028	0.120	0.130	0.013	0.036	0.030	0.035	0.037
Benzene	0.005	ND	ND	ND	0.008	0.019	0.017	0.003	0.005	0.005	0.004	0.004
Toluene	1	ND	ND	ND	ND	ND	0.001	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	A	ND	A	A	0.004	0.004	ND	ND	ND	ND	ND
TOTAL		0.020	0.010	ND	1.998	5.131	4.135	0.816	1.516	1.459	1.418	1.577

NOTES:
1) With two exceptions (see Note 2), all samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.
3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
4) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

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TABLE 5
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Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-6			MW-6 DUP		MW-10	MW-11					
Screen Depth Interval (ft)		25-35			25-35		42-52	27-37					
Sampling Date		9/28/99	5/30/00	11/16/00	9/15/98	11/16/00	3/29/96	3/29/96	11/21/96	2/18/97	5/13/97	9/18/98	11/16/00
Analysis Date		9/30/99	6/2/00	11/18/00	9/16/98	11/18/00	4/6/96	4/6/96	11/26/96	2/19/97	5/14/97	9//21/98	11/18/00
Constituent	PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	0.018	0.12	0.16	0.160	0.16	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.005	ND	0.003	0.003	ND	0.003	A	A	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	0.008	0.054	0.076	0.098	0.074	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.07	0.150	0.65	1.3	1.300	1.1	ND	ND	ND	ND	0.002	ND	ND
trans-1,2-Dichloroethene	0.1	ND	0.004	0.006	0.007	0.006	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.015	0.075	0.12	0.100	0.12	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.2	ND	0.004	ND	ND	ND	A	A	ND	ND	ND	ND	ND
Trichloroethene	0.005	0.012	0.066	0.098	0.098	0.098	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	0.002	0.003	0.022	0.031	0.052	0.029	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005	ND	0.002	0.003	0.004	0.003	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	A	A	ND	ND	ND	ND	ND
TOTAL		0.206	1.000	1.797	1.819	1.593	ND	ND	ND	ND	0.002	ND	ND

NOTES:

1) With two exceptions (see Note 2), all samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.

2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.

3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.

4) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 5
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Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-12									MW-13	
Screen Depth Interval (ft)		27-37									27-37	
Sampling Date		3/29/96	5/13/97	11/12/97	5/4/98	9/15/98	5/20/99	9/28/99	5/30/00	11/16/00	3/28/96	5/13/97
Analysis Date		4/6/96	5/14/97	11/14/97	5/7/98	9/16/98	5/25/99	9/30/99	6/2/00	11/21/00	4/1/96	5/14/97
Constituent	**PCL (mg/L)**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
1,1-Dichloroethane	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.018	0.029
1,2-Dichloroethane	0.005	A	ND	ND	ND	ND	ND	ND	ND	ND	A	ND
1,1-Dichloroethene	0.007	ND	0.003	0.003	ND	ND	ND	ND	ND	0.001	0.030	0.046
cis-1,2-Dichloroethene	0.07	0.001	0.004	0.006	ND	ND	0.002	0.001	0.002	0.003	0.068	0.099
trans-1,2-Dichloroethene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.002
Tetrachloroethene	0.005	0.005	0.012	0.024	0.018	0.013	0.010	0.008	0.006	0.006	0.080	0.100
1,1,1-Trichloroethane	0.2	A	ND	ND	ND	ND	ND	ND	ND	ND	A	ND
Trichloroethene	0.005	ND	0.001	0.003	ND	ND	ND	ND	0.001	ND	0.059	0.080
Vinyl Chloride	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.003	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	A	ND	ND	ND	ND	ND	ND	ND	ND	A	ND
TOTAL		**0.006**	**0.020**	**0.036**	**0.018**	**0.013**	**0.012**	**0.009**	**0.009**	**0.010**	**0.258**	**0.361**

NOTES:
1) With two exceptions (see Note 2), all samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.
3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
4) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 5
RESULTS OF GROUNDWATER SAMPLING ANALYSES: MONITORING WELLS SCREENED IN NEAR-SURFACE SAND UNIT
Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-13							MW-14	MW-15		
Screen Depth Interval (ft)		27-37							27-37	25-35		
Sampling Date		11/12/97	5/4/98	9/15/98	5/20/99	9/28/99	5/30/00	11/16/00	3/29/96	6/11/96	11/21/96	2/18/97
Analysis Date		11/14/97	5/7/98	9/16/98	5/25/99	9/30/99	6/2/00	11/21/00	4/6/96	6/11/96	11/26/96	2/19/97
Constituent	**PCL (mg/L)**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
1,1-Dichloroethane	2.4	**0.024**	**0.010**	ND	**0.016**	**0.024**	**0.018**	**0.026**	ND	**0.041**	**0.022**	**0.023**
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	A	ND	ND	ND
1,1-Dichloroethene	0.007	0.039	0.021	0.036	0.026	0.036	0.022	0.039	ND	0.040	0.021	0.024
cis-1,2-Dichloroethene	0.07	**0.050**	**0.020**	**0.031**	**0.023**	**0.041**	**0.024**	**0.044**	ND	0.160	0.092	0.094
trans-1,2-Dichloroethene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.110	0.097	0.130	0.082	0.110	0.062	0.11	ND	0.070	0.031	0.036
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	A	ND	ND	ND
Trichloroethene	0.005	0.057	0.041	0.035	0.019	0.025	0.018	0.021	ND	0.053	0.025	0.028
Vinyl Chloride	0.002	0.007	ND	ND	ND	ND	ND	ND	ND	0.005	ND	ND
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	A	ND	ND	ND
TOTAL		**0.287**	**0.179**	**0.232**	**0.166**	**0.236**	**0.144**	**0.240**	ND	**0.369**	**0.191**	**0.205**

NOTES:

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2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.

3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.

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Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-15								MW-15 DUP	MW-16A	
Screen Depth Interval (ft)		25-35								25-35	26-36	
Sampling Date		5/13/97	11/12/97	5/4/98	9/15/98	5/20/99	9/28/99	5/30/00	11/16/00	11/16/00	6/17/96	11/21/96
Analysis Date		5/14/97	11/14/97	5/7/98	9/16/98	5/25/99	9/30/99	6/2/00	11/18/00	11/18/00	6/17/96	11/26/96
Constituent	PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	0.013	0.036	0.031	ND	0.002	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	0.016	0.024	0.024	ND	ND	ND	ND	ND	ND	ND	0.002
cis-1,2-Dichloroethene	0.07	0.052	0.230	0.237	0.034	0.001	0.001	0.001	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.1	ND	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.027	0.035	0.057	0.009	0.004	0.002	ND	ND	ND	ND	0.002
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	0.019	0.052	0.066	0.005	0.001	0.001	ND	ND	ND	ND	ND
Vinyl Chloride	0.002	0.003	0.007	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005	ND	ND	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		0.130	0.385	0.397	0.051	0.008	0.004	0.001	ND	ND	ND	0.004

NOTES:
1) With two exceptions (see Note 2), all samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.
3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
4) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 5
RESULTS OF GROUNDWATER SAMPLING ANALYSES: MONITORING WELLS SCREENED IN NEAR-SURFACE SAND UNIT
Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-16A					MW-17					
Screen Depth Interval (ft)		26-36					26-36					
Sampling Date		2/18/97	5/13/97	5/4/98	9/15/98	11/16/00	6/11/96	11/21/96	2/18/97	5/13/97	11/12/97	5/4/98
Analysis Date		2/19/97	5/14/97	5/7/98	9/16/98	11/18/00	6/11/96	11/26/96	2/19/97	5/14/97	11/14/97	5/7/98
Constituent	PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	0.001	0.003	ND	ND	ND	ND	0.005	0.006	0.006	ND	ND
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	0.002	0.007	ND	ND	ND	0.016	0.014	0.020	0.024	0.002	ND
cis-1,2-Dichloroethene	0.07	ND	ND	ND	ND	ND	0.019	0.028	0.029	0.022	0.002	ND
trans-1,2-Dichloroethene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.002	0.002	ND	ND	ND	0.045	0.046	0.065	0.070	0.006	0.007
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	ND	0.001	ND	ND	ND	0.003	0.006	0.007	0.007	ND	ND
Vinyl Chloride	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		0.005	0.018	ND	ND	ND	0.083	0.099	0.127	0.129	0.010	0.007

NOTES:
1) With two exceptions (see Note 2), all samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.
3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
4) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

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Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-17					MW-18			MW-18 DUP		
Screen Depth Interval (ft)		26-36					32-42			32-42		
Sampling Date		9/15/98	5/20/99	9/28/99	5/30/00	11/16/00	9/28/99	5/30/00	11/14/00	9/28/99	5/30/00	11/14/00
Analysis Date		9/16/98	5/25/99	9/30/99	6/2/00	11/18/00	9/30/99	6/2/00	11/16/00	9/30/99	6/2/00	11/16/00
Constituent	PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	ND	0.010	0.028	0.035	0.036	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	0.004	0.002	0.004	0.004	0.006	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.07	ND	0.007	0.011	0.005	0.009	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.009	0.004	0.006	0.007	0.010	0.002	ND	ND	0.002	ND	ND
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	ND	ND	0.001	0.001	0.002	ND	ND	ND	ND	ND	ND
Vinyl Chloride	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		0.013	0.023	0.050	0.052	0.063	0.002	ND	ND	0.002	ND	ND

NOTES:
1) With two exceptions (see Note 2), all samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.
3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
4) PCL = Tier 1 groundwater Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 5
RESULTS OF GROUNDWATER SAMPLING ANALYSES: MONITORING WELLS SCREENED IN NEAR-SURFACE SAND UNIT
Sampling Dates: March 1996 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Sample Identification		MW-19			MW-20			MW-21	MW-21 DUP	MW-22	MW-23
Screen Depth Interval (ft)		33-43			35-45			30-40	30-40	30-40	25-35
Sampling Date		9/28/99	5/30/00	11/14/00	9/28/99	5/30/00	11/14/00	11/15/00	11/15/00	11/15/00	11/16/00
Analysis Date		9/30/99	6/2/00	11/16/00	9/30/99	6/2/00	11/16/00	11/17/00	11/17/00	11/17/00	11/18/00
Constituent	**PCL (mg/L)**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
1,1-Dichloroethane	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.006**
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	ND	ND	ND	**0.001**	ND	ND	ND	ND	ND	**0.004**
cis-1,2-Dichloroethene	0.07	ND	ND	ND	**0.001**	ND	ND	**0.002**	**0.003**	**0.003**	ND
trans-1,2-Dichloroethene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	**0.003**	ND	ND	**0.005**	**0.002**	ND	**0.002**	**0.002**	**0.002**	**0.018**
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	ND	ND	ND	ND	ND	ND	**0.001**	**0.001**	**0.001**	**0.002**
Vinyl Chloride	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		**0.003**	ND	ND	**0.007**	**0.002**	ND	**0.005**	**0.006**	**0.006**	**0.030**

NOTES:

1) With two exceptions (see Note 2), all samples were analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.

2) Samples collected from MW-15 and MW-17 on June 11, 1996 were analyzed at SPL in accordance with EPA Method 8240.

3) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.

4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 6
RESULTS OF GROUNDWATER SAMPLING ANALYSES: RECOVERY WELLS
Sampling Period: May 1997 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Well Identification		RW-1										RW-2	
Screen Depth Interval (ft, BGS)		(29 - 49)										(29.5 - 49.5)	
Sampling Date		5/20/97	6/9/97	7/17/97	10/7/97	11/12/97	5/4/98	9/14/98	5/20/99	9/28/99	11/16/00	5/20/97	7/17/97
Analysis Date		5/21/97	6/10/97	7/18/97	10/10/97	11/14/97	5/7/98	9/15/98	5/25/99	9/30/99	11/18/00	5/21/97	7/18/97
Constituent	**PCL (mg/L)**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
1,1-Dichloroethane	2.4	ND	0.017	0.017	0.009	0.022	0.015	0.017	0.008	0.006	ND	0.019	0.022
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	ND	0.011	0.013	0.008	0.016	0.012	0.017	0.005	0.005	ND	0.037	0.040
cis-1,2-Dichloroethene	0.07	0.007	0.160	0.340	0.076	0.140	0.104	0.120	0.055	0.044	0.001	0.070	0.150
trans-1,2-Dichloroethene	0.1	ND	ND	0.001	ND	ND	ND	ND	ND	ND	ND	ND	0.002
Tetrachloroethene	0.005	ND	0.022	0.017	0.013	0.031	0.028	0.035	0.011	0.010	0.001	0.052	0.056
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	ND	0.042	0.031	0.021	0.040	0.053	0.026	0.010	0.010	ND	0.044	0.066
Vinyl Chloride	0.002	ND	ND	0.002	ND	ND	ND	ND	ND	ND	ND	ND	0.002
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		**0.007**	**0.252**	**0.221**	**0.127**	**0.249**	**0.192**	**0.217**	**0.089**	**0.075**	**0.002**	**0.252**	**0.368**

NOTES:
1) All samples analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
3) Groundwater recovery from wells RW-1 through RW-6 began on May 20, 1997.
4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 6
RESULTS OF GROUNDWATER SAMPLING ANALYSES: RECOVERY WELLS
Sampling Period: May 1997 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Well Identification		RW-2							RW-3				
Screen Depth Interval (ft, BGS)		(29.5 - 49.5)							(30.5 - 50.5)				
Sampling Date		10/7/97	11/12/97	5/4/98	9/14/98	5/20/99	9/28/99	11/16/00	5/20/97	7/17/97	10/7/97	11/12/97	5/4/98
Analysis Date		10/10/97	11/14/97	5/7/98	9/15/98	5/25/99	9/30/99	11/18/00	5/21/97	7/18/97	10/10/97	11/14/97	5/7/98
Constituent	**PCL (mg/L)**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
1,1-Dichloroethane	2.4	0.016	0.016	ND	0.010	0.016	0.028	0.016	0.005	0.007	0.009	0.019	0.028
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	0.027	0.021	0.011	0.010	0.017	0.015	0.011	0.025	0.024	0.019	0.014	0.014
cis-1,2-Dichloroethene	0.07	0.120	0.093	0.025	0.020	0.010	0.012	0.019	0.014	0.015	0.009	0.011	0.031
trans-1,2-Dichloroethene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.057	0.052	0.043	0.037	0.049	0.041	0.027	0.064	0.066	0.040	0.029	0.035
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	0.044	0.033	0.018	0.010	0.008	0.007	0.008	0.006	0.012	0.005	0.004	0.017
Vinyl Chloride	0.002	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		0.265	0.215	0.097	0.087	0.100	0.103	0.081	0.112	0.124	0.082	0.077	0.125

NOTES:
1) All samples analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
3) Groundwater recovery from wells RW-1 through RW-6 began on May 20, 1997.
4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 6
RESULTS OF GROUNDWATER SAMPLING ANALYSES: RECOVERY WELLS
Sampling Period: May 1997 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Well Identification		RW-3				RW-4							
Screen Depth Interval (ft, BGS)		(30.5 - 50.5)				(28 - 48)							
Sampling Date		9/14/98	5/20/99	9/28/99	11/16/00	5/20/97	6/9/97	7/17/97	10/7/97	11/12/97	5/4/98	9/14/98	5/20/99
Analysis Date		9/15/98	5/25/99	9/30/99	11/18/00	5/21/97	6/10/97	7/18/97	10/10/97	11/14/97	5/7/98	9/15/98	5/25/99
Constituent	PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	0.028	0.034	0.030	0.025	ND	ND	0.005	0.004	0.006	ND	ND	ND
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	0.014	0.011	0.008	0.005	ND	ND	0.005	0.004	0.003	ND	ND	ND
cis-1,2-Dichloroethene	0.07	0.039	0.021	0.012	0.004	ND	0.010	0.026	0.024	0.028	ND	ND	ND
trans-1,2-Dichloroethene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.025	0.019	0.014	0.009	ND	0.005	0.010	0.006	0.007	0.003	ND	ND
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	0.012	0.008	0.004	0.002	ND	0.002	0.007	0.005	0.006	ND	ND	ND
Vinyl Chloride	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	0.001	ND	ND	ND	ND	0.001
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		0.118	0.093	0.068	0.045	ND	0.020	0.054	0.043	0.050	0.003	ND	0.001

NOTES:
1) All samples analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
3) Groundwater recovery from wells RW-1 through RW-6 began on May 20, 1997.
4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 6
RESULTS OF GROUNDWATER SAMPLING ANALYSES: RECOVERY WELLS
Sampling Period: May 1997 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Well Identification		RW-4		RW-5								RW-6	
Screen Depth Interval (ft, BGS)		(28 - 48)		(31 - 51)								(29 - 49)	
Sampling Date		9/28/99	11/16/00	5/20/97	7/17/97	10/7/97	11/12/97	5/4/98	9/14/98	5/20/99	11/16/00	5/20/97	7/17/97
Analysis Date		9/30/99	11/18/00	5/21/97	7/18/97	10/10/97	11/14/97	5/7/98	9/15/98	5/25/99	11/18/00	5/21/97	7/18/97
Constituent	PCL (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1,1-Dichloroethane	2.4	ND	ND	0.009	0.027	0.013	0.025	0.017	0.013	0.011	0.009	0.058	0.042
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	ND	ND	0.007	0.035	0.019	0.032	0.021	0.024	0.021	0.014	0.032	0.031
cis-1,2-Dichloroethene	0.07	ND	ND	0.086	0.190	0.099	0.150	0.100	0.061	0.049	0.029	0.300	0.300
trans-1,2-Dichloroethene	0.1	ND	ND	ND	0.002	ND	0.001	ND	ND	ND	ND	0.003	0.002
Tetrachloroethene	0.005	ND	ND	0.007	0.054	0.032	0.060	0.065	0.065	0.051	0.031	0.020	0.029
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	ND	ND	0.022	0.022	0.040	0.062	0.064	0.035	0.026	0.016	0.058	0.048
Vinyl Chloride	0.002	ND	ND	ND	0.005	0.002	0.008	ND	ND	0.001	ND	0.021	0.008
Benzene	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.004	0.002
Toluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL		ND	ND	0.131	0.385	0.205	0.338	0.267	0.196	0.159	0.099	0.482	0.462

NOTES:
1) All samples analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
3) Groundwater recovery from wells RW-1 through RW-6 began on May 20, 1997.
4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 6
RESULTS OF GROUNDWATER SAMPLING ANALYSES: RECOVERY WELLS
Sampling Period: May 1997 through November 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Well Identification		RW-6						
Screen Depth Interval (ft, BGS)		(29 - 49)						
Sampling Date		10/7/97	11/12/97	5/4/98	9/14/98	5/20/99	9/28/99	11/16/00
Analysis Date		10/10/97	11/14/97	5/7/98	9/15/98	5/25/99	9/30/99	11/18/00
Constituent	**PCL (mg/L)**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
1,1-Dichloroethane	2.4	0.032	0.036	0.017	0.020	0.018	0.014	0.012
1,2-Dichloroethane	0.005	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.007	0.025	0.020	0.013	0.014	0.012	0.010	0.008
cis-1,2-Dichloroethene	0.07	0.340	0.210	0.127	0.140	0.110	0.091	0.085
trans-1,2-Dichloroethene	0.1	0.002	0.001	ND	ND	ND	ND	ND
Tetrachloroethene	0.005	0.028	0.024	0.023	0.022	0.018	0.016	0.011
1,1,1-Trichloroethane	0.2	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.005	0.044	0.035	0.030	0.022	0.016	0.016	0.013
Vinyl Chloride	0.002	0.005	0.008	ND	ND	0.004	0.002	0.002
Benzene	0.005	0.001	0.002	ND	ND	ND	ND	ND
Toluene	1	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.7	ND	ND	ND	ND	ND	ND	ND
Xylenes	10	ND	ND	ND	ND	ND	ND	ND
TOTAL		0.477	0.336	0.210	0.218	0.178	0.149	0.131

NOTES:
1) All samples analyzed at Southern Petroleum Laboratories (SPL), Houston, Texas in accordance with EPA Method 624.
2) No trip blank and field blank samples had constituent concentrations above the sample quantitation limit of 0.001 mg/L.
3) Groundwater recovery from wells RW-1 through RW-6 began on May 20, 1997.
4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
ND = Not detected at the sample quantitation limit of 0.001 mg/L. A = This constituent added to indicator parameter list subsequent to initial sampling event.

GROUNDWATER SERVICES, INC.

TABLE 7
RESULTS OF GROUNDWATER SAMPLING ANALYSES: SELECTED MONITORING WELLS, 1992 - 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Constituent	PCL (mg/L)	MW-2: Constituent Concentration (mg/L), 1992-2000															
		3/92	5/92	2/93	6/93	8/93	1/94	3/95	3/96	5/97	11/97	5/98	9/98	5/99	9/99	5/00	11/00
Tetrachloroethene	0.005	0.054	0.013	0.013	0.055	0.058	0.027	0.032	0.016	0.018	0.022	0.006	<0.001	0.003	0.004	< 0.001	0.003
Trichloroethene	0.005	0.052	0.013	0.015	0.050	0.048	0.024	0.034	0.017	0.020	0.022	0.007	<0.001	0.001	0.002	< 0.001	0.003
1,1-Dichloroethene	0.007	0.036	0.007	0.010	0.042	0.046	0.012	0.038	0.013	0.018	0.019	<0.001	<0.001	0.002	0.001	0.002	0.004
total 1,2-Dichloroethene	NA	0.102	NR	NR	NA	NA	NR	NR	0.055	0.066	0.075	0.018	<0.001	0.003	0.005	0.018	0.026
Vinyl Chloride	0.002	0.006	0.001	0.001	0.005	0.006	0.002	0.005	0.003	0.006	0.009	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Sum of PCE and TCE		0.106	0.026	0.028	0.105	0.098	0.045	0.066	0.033	0.038	0.044	0.013	ND	0.004	0.006	ND	0.006
Sum of 1,1-DCE; total-1,2-DCE; and VC		0.146	-	-	-	-	-	-	0.071	0.090	0.103	0.018	ND	0.005	0.006	0.020	0.032

Constituent	PCL (mg/L)	MW-6: Constituent Concentration (mg/L), 1992-2000																
		3/92	5/92	2/93	6/93	8/93	1/94	3/95	3/96	5/97	7/97	11/97	3/98	5/98	9/98	5/99	9/99	5/00	11/00
Tetrachloroethene	0.005	0.032	0.015	0.002	0.014	0.010	0.004	0.045	0.075	0.220	0.200	0.047	0.100	0.111	0.084	0.120	0.015	0.075	0.12
Trichloroethene	0.005	0.039	0.025	0.005	0.017	0.016	0.007	0.100	0.160	0.420	0.290	0.048	0.095	0.124	0.080	0.096	0.012	0.066	0.095
1,1-Dichloroethene	0.007	0.018	0.010	0.002	0.005	0.005	0.003	0.041	0.110	0.300	0.240	0.052	0.110	0.075	0.069	0.072	0.009	0.051	0.076
total 1,2-Dichloroethene	NA	0.183	NR	NR	NA	NA	NR	NR	1.407	3.524	2.821	0.553	1.007	0.978	1.006	1.106	0.150	0.654	1.306
Vinyl Chloride	0.002	<0.01	<0.001	<0.0002	<0.001	<0.001	<0.001	0.013	0.028	0.120	0.130	0.013	0.036	0.036	0.035	0.037	0.003	0.022	0.031
Sum of PCE and TCE		0.070	0.040	0.007	0.026	0.026	0.011	0.146	0.255	0.640	0.490	0.095	0.195	0.235	0.164	0.210	0.027	0.141	0.218
Sum of 1,1-DCE; total-1,2-DCE; and VC		0.201	-	-	-	-	-	-	1.545	3.944	3.191	0.618	1.153	1.087	1.110	1.215	0.161	0.730	1.413

Notes:

1) Groundwater sampling of MW-2 and MW-6 during 3/92 conducted by ENTRIX, Inc. Groundwater sampling of MW-2 and MW-6 during the period 5/92 through 3/95 conducted by Groundwater Technology, Inc. All other data are from sampling events conducted by Groundwater Services, Inc. during the period 3/96 through 11/00.
2) Analytical results shown are for presumed parent compounds (PCE and TCE) and daughter products (1,1-DCE; 1,2-DCE; and VC).
3) PCE = tetrachloroethene; TCE = trichloroethene; DCE = dichloroethene; VC = vinyl chloride; NR = not reported by laboratory; NA = not available; ND = not detected. < = Not detected at the specified sample quantitation limit.
4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
5) The concentration of total 1,2-DCE is the sum of the concentrations of the cis and trans isomers of 1,2-DCE.

GROUNDWATER SERVICES, INC.

TABLE 7
RESULTS OF GROUNDWATER SAMPLING ANALYSES: SELECTED MONITORING WELLS, 1992 - 2000

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Constituent	PCL (mg/L)	MW-13: Constituent Concentration (mg/L), 1996-2000								
		3/96	5/97	11/97	5/98	9/98	5/99	9/99	5/00	11/00
Tetrachloroethene	0.005	0.080	0.100	0.110	0.087	0.130	0.082	0.110	0.062	0.10
Trichloroethene	0.005	0.059	0.080	0.057	0.041	0.035	0.019	0.025	0.018	0.021
1,1-Dichloroethene	0.007	0.030	0.046	0.039	0.021	0.036	0.020	0.036	0.022	0.039
total 1,2-Dichloroethene	NA	0.068	0.101	0.050	0.020	0.031	0.023	0.041	0.024	0.044
Vinyl Chloride	0.002	<0.001	0.005	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sum of PCE and TCE		0.139	0.180	0.167	0.128	0.165	0.101	0.135	0.080	0.131
Sum of 1,1-DCE; total-1,2-DCE; and VC		0.098	0.152	0.096	0.041	0.067	0.049	0.077	0.046	0.083

Constituent	PCL (mg/L)	MW-15: Constituent Concentration (mg/L), 1996-2000										
		6/96	11/96	2/97	5/97	11/97	5/98	9/98	5/99	9/99	5/00	11/00
Tetrachloroethene	0.005	0.070	0.031	0.036	0.027	0.035	0.052	0.009	0.004	0.002	<0.001	<0.001
Trichloroethene	0.005	0.055	0.025	0.028	0.019	0.052	0.056	0.008	0.001	0.001	<0.001	<0.001
1,1-Dichloroethene	0.007	0.040	0.021	0.024	0.016	0.024	0.024	<0.001	<0.001	<0.001	<0.001	<0.001
total 1,2-Dichloroethene	NA	0.160	0.092	0.094	0.052	0.231	0.217	0.034	0.001	0.001	0.001	<0.001
Vinyl Chloride	0.002	0.085	<0.001	<0.001	0.083	0.907	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sum of PCE and TCE		0.123	0.056	0.064	0.046	0.087	0.123	0.017	0.005	0.003	ND	ND
Sum of 1,1-DCE; total-1,2-DCE; and VC		0.205	0.113	0.118	0.071	0.262	0.241	0.034	0.001	0.001	0.001	ND

Notes:

1) Groundwater sampling of MW-2 and MW-6 during 3/92 conducted by ENTRIX, Inc. Groundwater sampling of MW-2 and MW-6 during the period 5/92 through 3/95 conducted by Groundwater Technology, Inc. All other data are from sampling events conducted by Groundwater Services, Inc. during the period 3/96 through 11/00.
2) Analytical results shown are for presumed parent compounds (PCE and TCE) and daughter products (1,1-DCE; 1,2-DCE; and VC).
3) PCE = tetrachloroethene; TCE = trichloroethene; DCE = dichloroethene; VC = vinyl chloride; NR = not reported by laboratory; NA = not available; ND = not detected.
   < = Not detected at the specified sample quantitation limit.
4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
5) The concentration of total 1,2-DCE is the sum of the concentrations of the cis and trans isomers of 1,2-DCE.

GROUNDWATER SERVICES, INC.

TABLE 7
RESULTS OF GROUNDWATER SAMPLING ANALYSES: SELECTED MONITORING WELLS, 1992 - 1999

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
12950 West Little York, Houston, Texas

Constituent	MCL (mg/L)	MW-17: Constituent Concentration (mg/L), 1996-2000										
		6/96	11/96	2/97	5/97	11/97	5/98	9/98	5/99	9/99	5/00	11/00
Tetrachloroethene	0.005	0.045	0.046	0.065	0.070	0.006	0.007	0.009	0.004	0.006	0.007	0.010
Trichloroethene	0.005	0.003	0.006	0.007	0.007	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.002
1,1-Dichloroethene	0.007	0.016	0.014	0.020	0.024	0.002	<0.001	0.004	0.002	0.004	0.004	0.006
total 1,2-Dichloroethene	NA	0.019	0.028	0.029	0.022	0.002	<0.001	<0.001	0.007	0.011	0.005	0.009
Vinyl Chloride	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sum of PCE and TCE		0.048	0.052	0.072	0.077	0.006	0.007	0.009	0.004	0.007	0.008	0.012
Sum of 1,1-DCE; total-1,2-DCE; and VC		0.035	0.042	0.049	0.046	0.004	ND	0.004	0.009	0.015	0.009	0.015

Notes:

1) Groundwater sampling of MW-2 and MW-6 during 3/92 conducted by ENTRIX, Inc. Groundwater sampling of MW-2 and MW-6 during the period 5/92 through 3/95 conducted by Groundwater Technology, Inc. All other data are from sampling events conducted by Groundwater Services, Inc. during the period 3/96 through 11/00.
2) Analytical results shown are for presumed parent compounds (PCE and TCE) and daughter products (1,1-DCE; 1,2-DCE; and VC).
3) PCE = tetrachloroethene; TCE = trichloroethene; DCE = dichloroethene; VC = vinyl chloride; NR = not reported by laboratory; NA = not available; ND = not detected. < = Not detected at the specified sample quantitation limit.
4) PCL = Tier 1 Protective Concentration Level specified under Texas Risk Reduction Program. Constituent concentrations exceeding PCLs are indicated by shading of the data values.
5) The concentration of total 1,2-DCE is the sum of the concentrations of the cis and trans isomers of 1,2-DCE.

GSI Job No. G-2348
January 31, 2001

GROUNDWATER
SERVICES, INC.

GROUNDWATER MONITORING REPORT, NEAR-SURFACE SAND UNIT: July 2000 through January 2001

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
Houston, Texas

Figures

Figure Number and Title

Figure 1: Locations of Near-Surface Monitoring and Recovery Wells

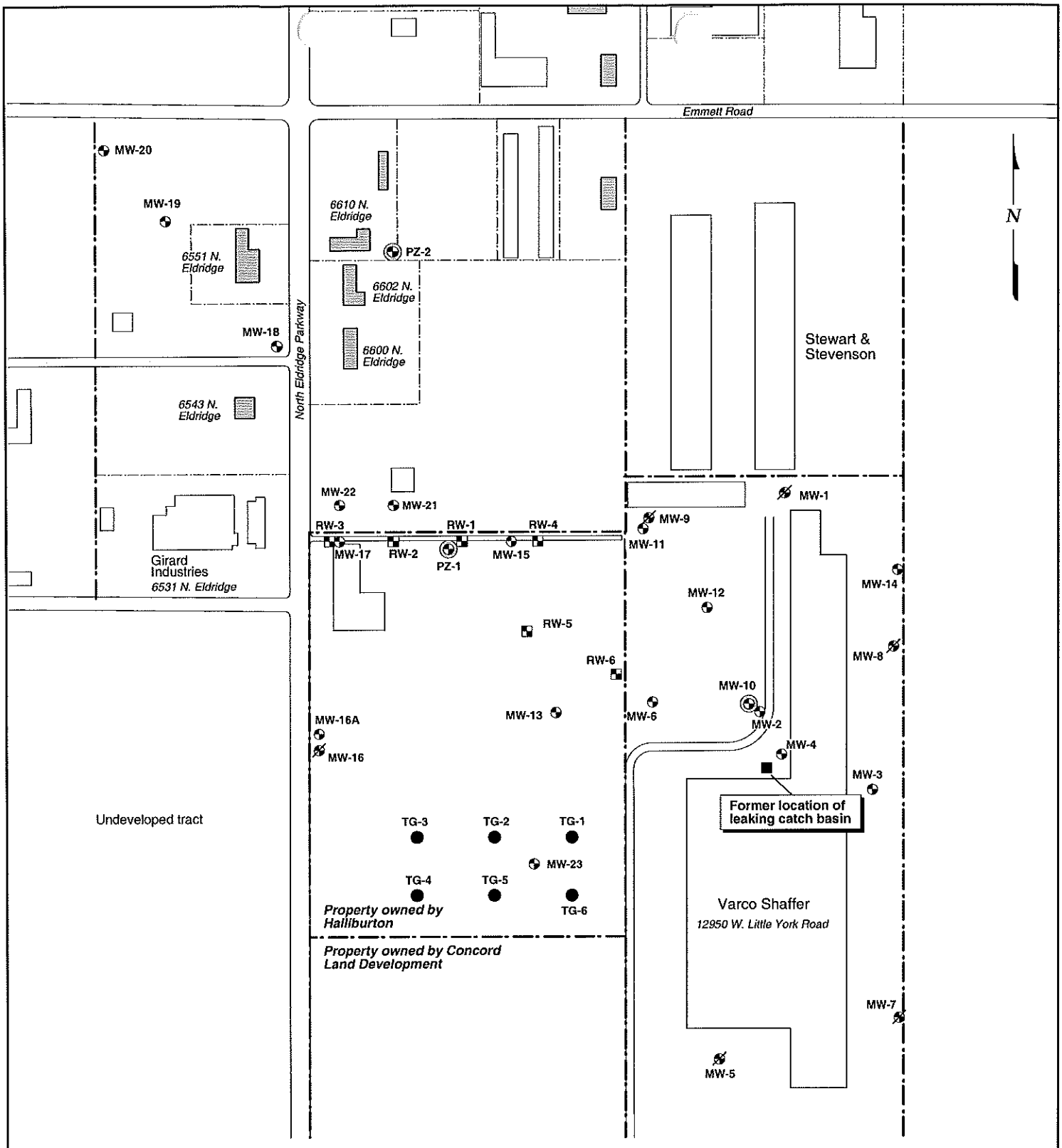
Figure 2: Potentiometric Surface Map for Near-Surface Sand Unit, Measurement Date: November 22, 2000

Figure 3: Analytical Results for Near-Surface Groundwater Samples, Total VOCs (September - November 2000)

Figure 4: Analytical Results for Near-Surface Groundwater Samples, Tetrachloroethene (September - November 2000)

Figure 5: Log-Scale Plot of Concentrations vs. Time in Selected Monitoring Wells (1996-2000)

Figure 6: Proposed Monitoring Well Locations



LEGEND

- Geoprobe sampling location (Sept. 2000)
- Monitoring well screened to intersect water table in near-surface sand unit
- Monitoring well or piezometer screened at base of near-surface sand unit
- Plugged and abandoned monitoring well
- Recovery well, screened in near-surface sand unit

SCALE (ft.)

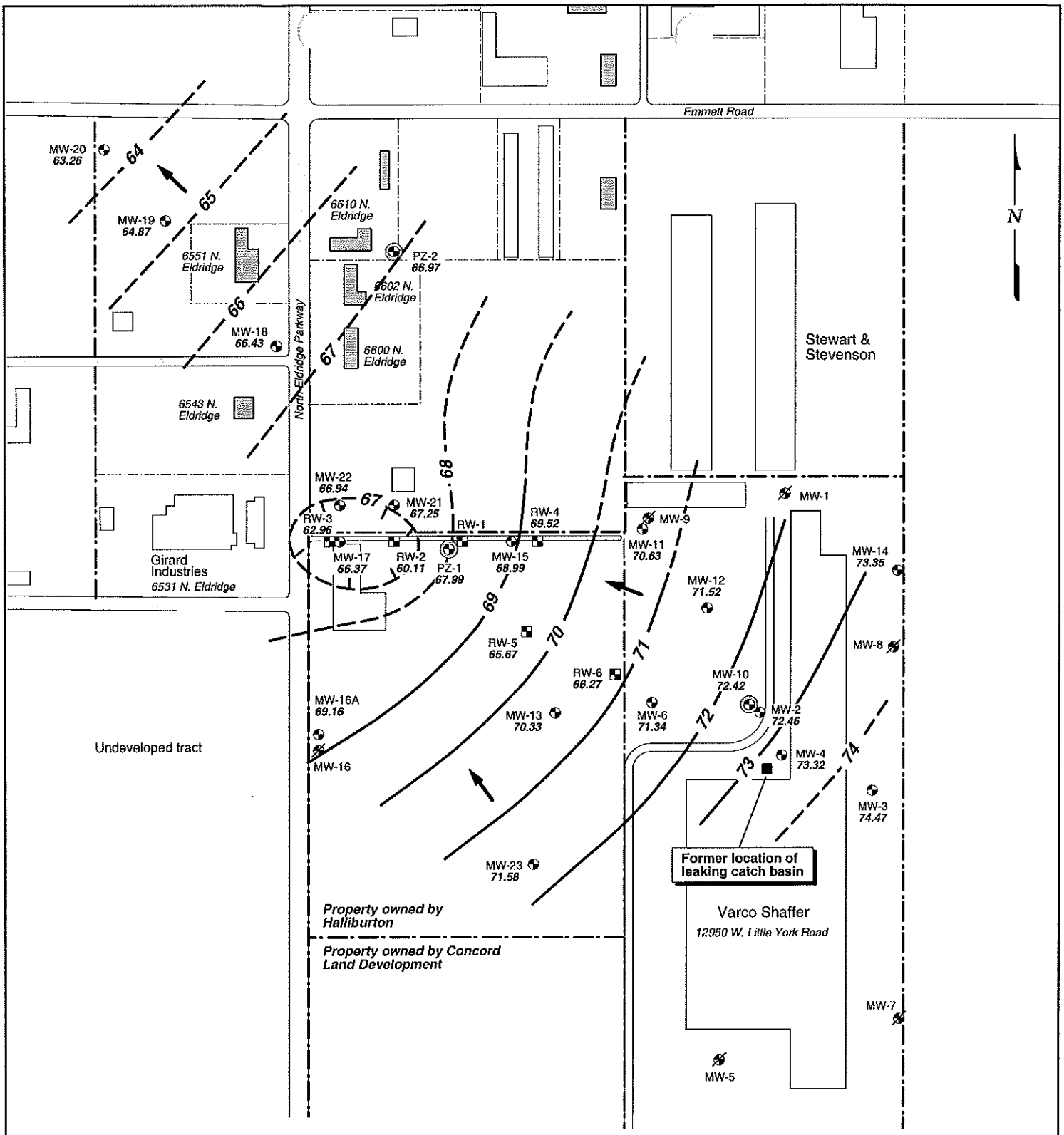
0 150 300

GROUNDWATER SERVICES, INC.

GSI Job No.	G-2348	Drawn By:	DLB
Issued:	1/31/01	Chk'd By:	RAE
Revised:		Aprv'd By:	JAK
Scale:	As Shown		FIGURE 1

LOCATIONS OF NEAR-SURFACE MONITORING AND RECOVERY WELLS

Former Baroid / Shaffer Plant
12950 W. Little York, Houston, Texas



LEGEND

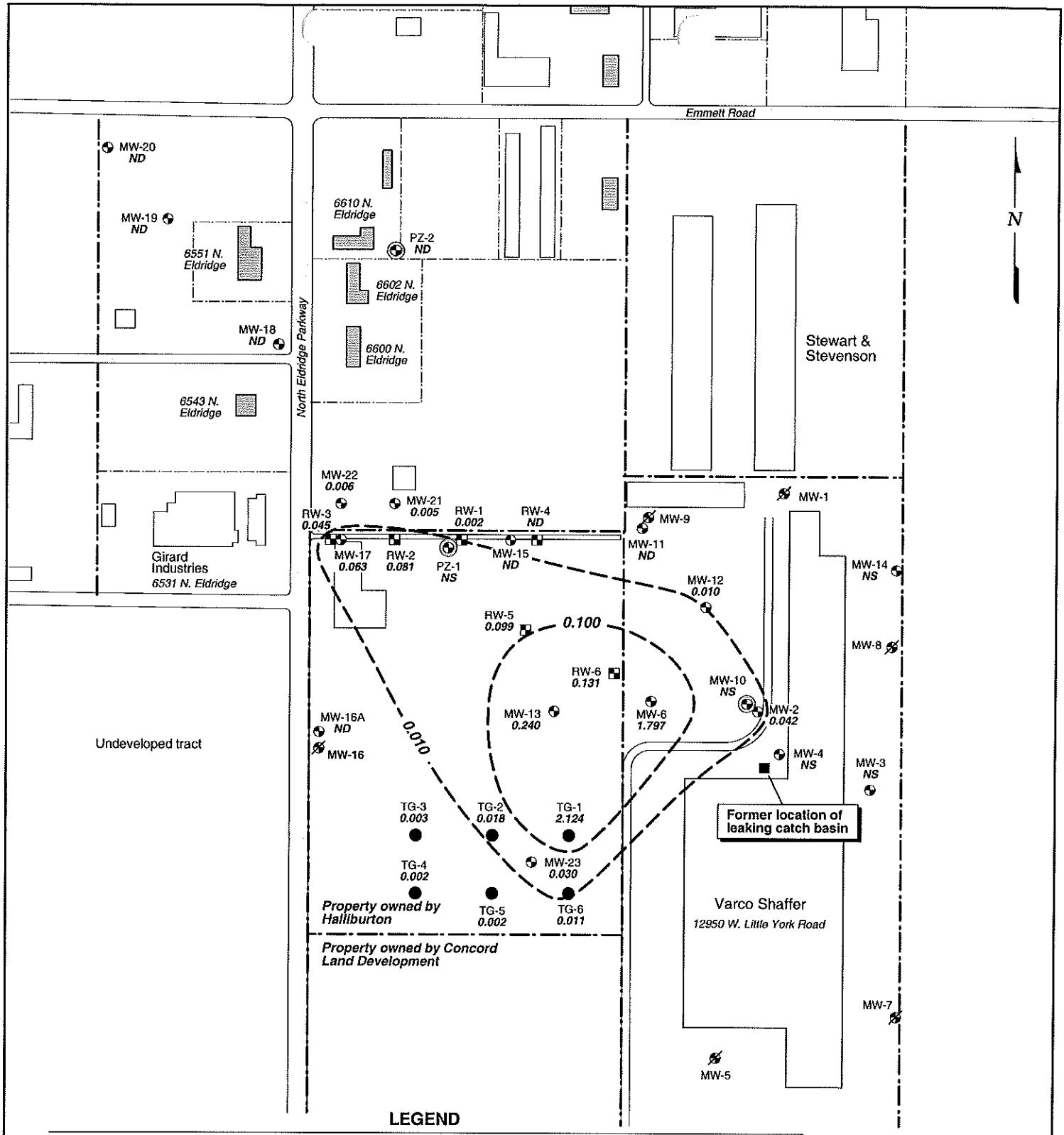
- Monitoring well screened to intersect water table in near-surface sand unit
- Monitoring well or piezometer screened near base of near-surface sand unit
- Plugged and abandoned monitoring well
- Recovery well, screened in near-surface sand unit
- —70— Potentiometric surface contour in near-surface sand unit (ft., site datum), dashed where inferred.
- 69.16 Measured static water level elevation in near-surface sand unit (ft., site datum), (11/22/00).
- Groundwater flow direction for near-surface sand unit.

SCALE (ft.)
0 150 300

GROUNDWATER SERVICES, INC.

GSI Job No.	G-2348	Drawn By:	DLB
Issued:	1/31/01	Chk'd By:	RAE
Revised:		Aprv'd By:	JAK
Scale:	As Shown		FIGURE 2

POTENTIOMETRIC SURFACE MAP FOR NEAR-SURFACE SAND UNIT,
Measurement Date: November 22, 2000
Former Baroid / Shaffer Plant
12950 W. Little York, Houston, Texas



LEGEND

- Geoprobe sampling location (Sept. 2000)
- Monitoring well screened to intersect water table in near-surface sand unit
- Monitoring well or piezometer screened near base of near-surface sand unit
- Plugged and abandoned monitoring well
- Recovery well, screened in near-surface sand unit

–0.100– Total VOC concentration contour in mg/L

0.001 Total VOC concentration in groundwater (mg/L)

ND Not detected, at a detection limit of 0.001 mg/L

NS Not sampled

SCALE (ft.)

0 150 300

NOTES:

1) Geoprobe groundwater sampling was conducted September 12, 2000.

2) Groundwater samples were collected from monitoring wells, recovery wells, and PZ-2 during November 13-17, 2000.

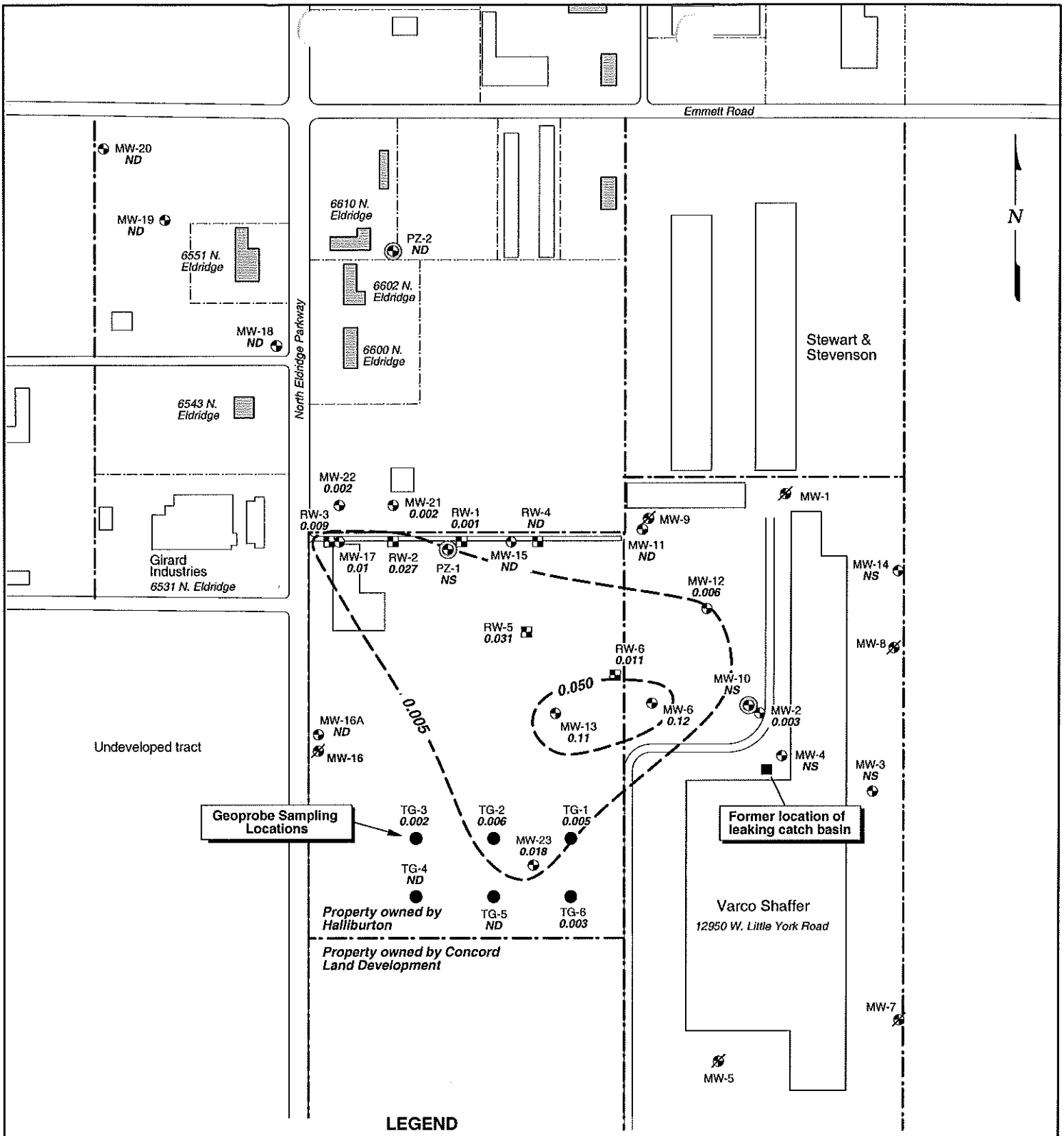
GROUNDWATER SERVICES, INC.

GSI Job No.	G-2348	Drawn By:	DLB
Issued:	1/31/01	Chk'd By:	RAE
Revised:		Aprv'd By:	JAK
Scale:	As Shown		FIGURE 3

ANALYTICAL RESULTS FOR NEAR-SURFACE GROUNDWATER SAMPLES, TOTAL VOCs

Sampling Period: September - November 2000

Former Baroid / Shaffer Plant
12950 W. Little York, Houston, Texas



LEGEND

- Geoprobe sampling location (Sept. 2000)
- Monitoring well screened to intersect water table in near-surface sand unit
- Monitoring well or piezometer screened near base of near-surface sand unit
- Plugged and abandoned monitoring well
- Recovery well, screened in near-surface sand unit

–0.050–	Total VOC concentration contour in mg/L
0.001	Total VOC concentration in groundwater (mg/L)
ND	Not detected, at a detection limit of 0.001 mg/L
NS	Not sampled

SCALE (ft.)
0 150 300

NOTES:

1) Geoprobe groundwater sampling was conducted September 12, 2000.
2) Groundwater samples were collected from monitoring wells, recovery wells, and PZ-2 during November 13-17, 2000.

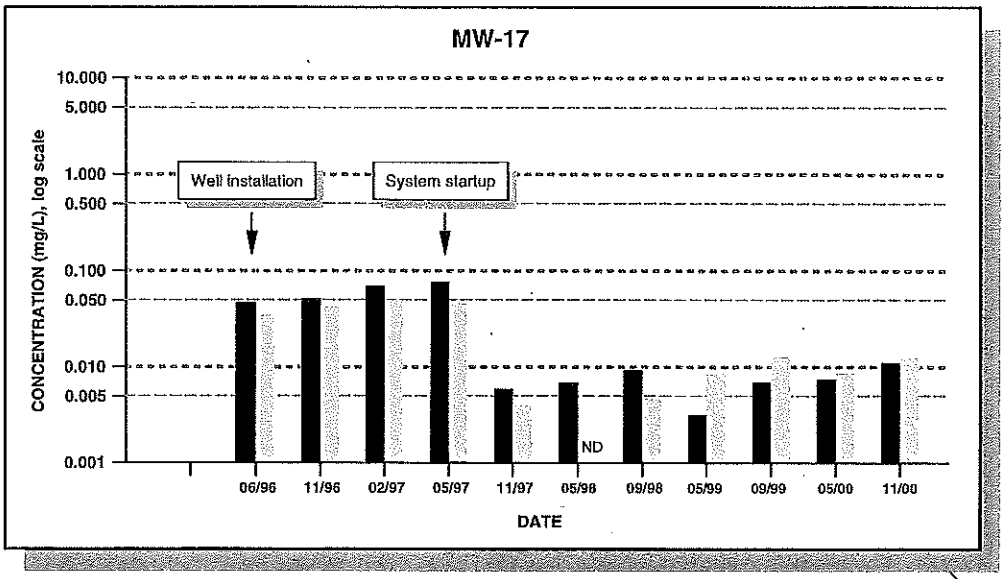
GROUNDWATER SERVICES, INC.

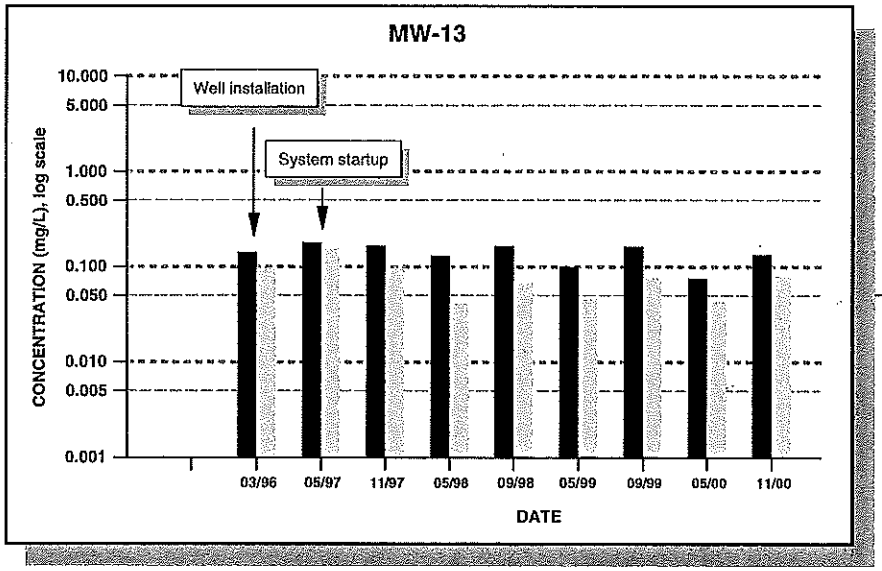
GSI Job No.	G-2348	Drawn By:	DLB
Issued:	1/31/01	Chk'd By:	RAE
Revised:	_____	Aprv'd By:	JAK
Scale:	As Shown	FIGURE 4	

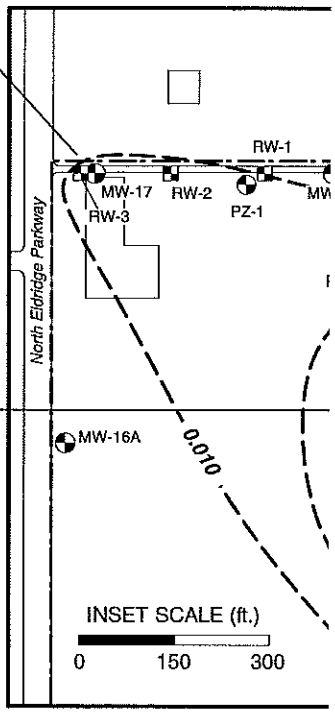
ANALYTICAL RESULTS FOR NEAR-SURFACE GROUNDWATER SAMPLES, TETRACHLOROETHENE

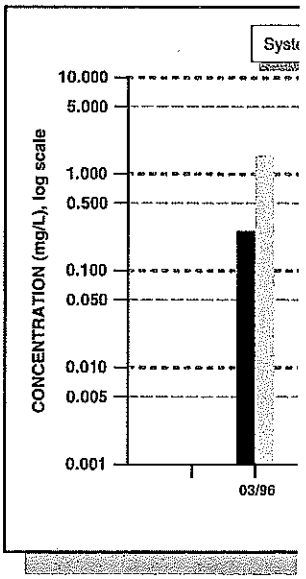
Sampling Period: September - November 2000

Former Baroid / Shaffer Plant
12950 W. Little York, Houston, Texas









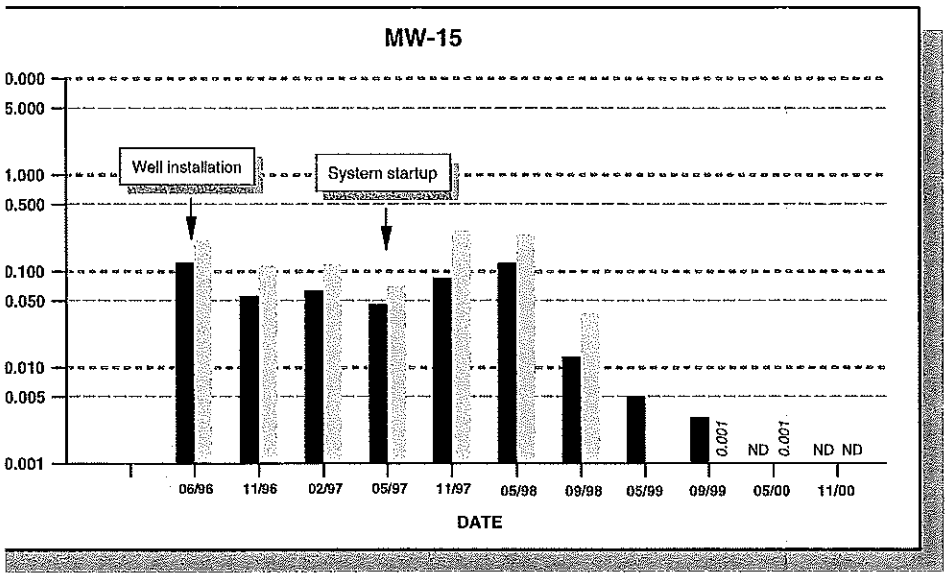
LEGEND

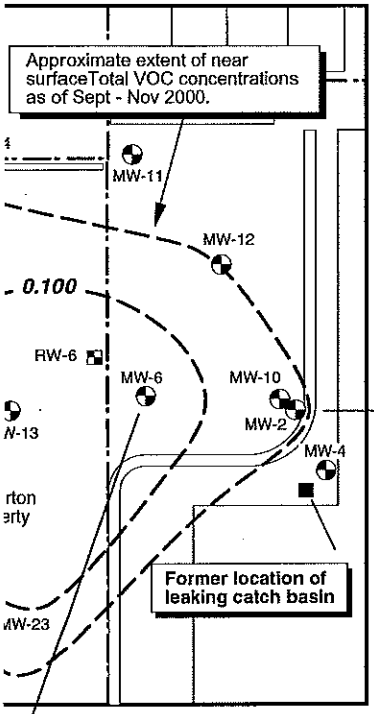
Sum of PCE and TCE concentrations (parent compounds), mg/L (log scale)

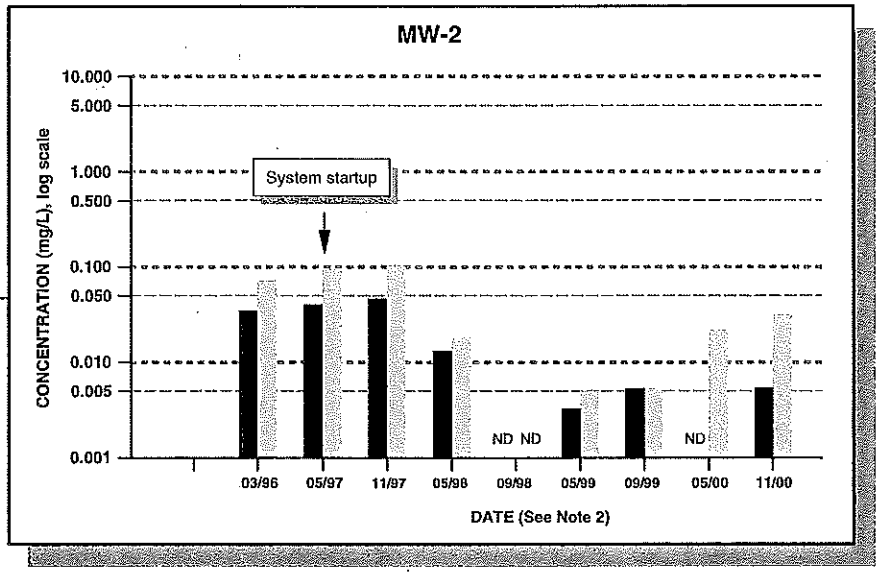
Sum of 1,1-DCE; total 1,2-DCE; and VC concentrations (daughter compounds) mg/L (log scale)

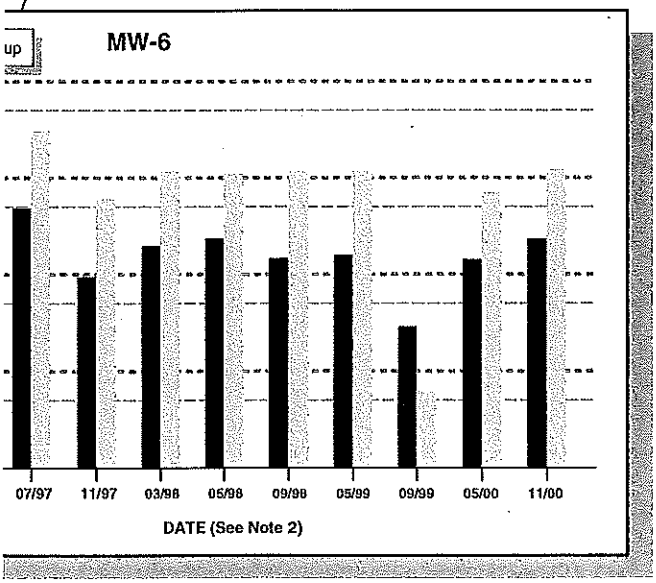
NOTES:

1. Groundwater recovery and treatment system began operation May 20, 1997.
2. Total 1,2-DCE concentrations not available for samples collected from 5/92 through 5/95 at monitoring wells MW-2 & MW-6.
3. Concentrations on the above graphs are presented using a logarithmic scale.
4. PCE = tetrachloroethene; TCE = trichloroethene; DCE = dichloroethene; VC = vinyl chloride; ND = not detected







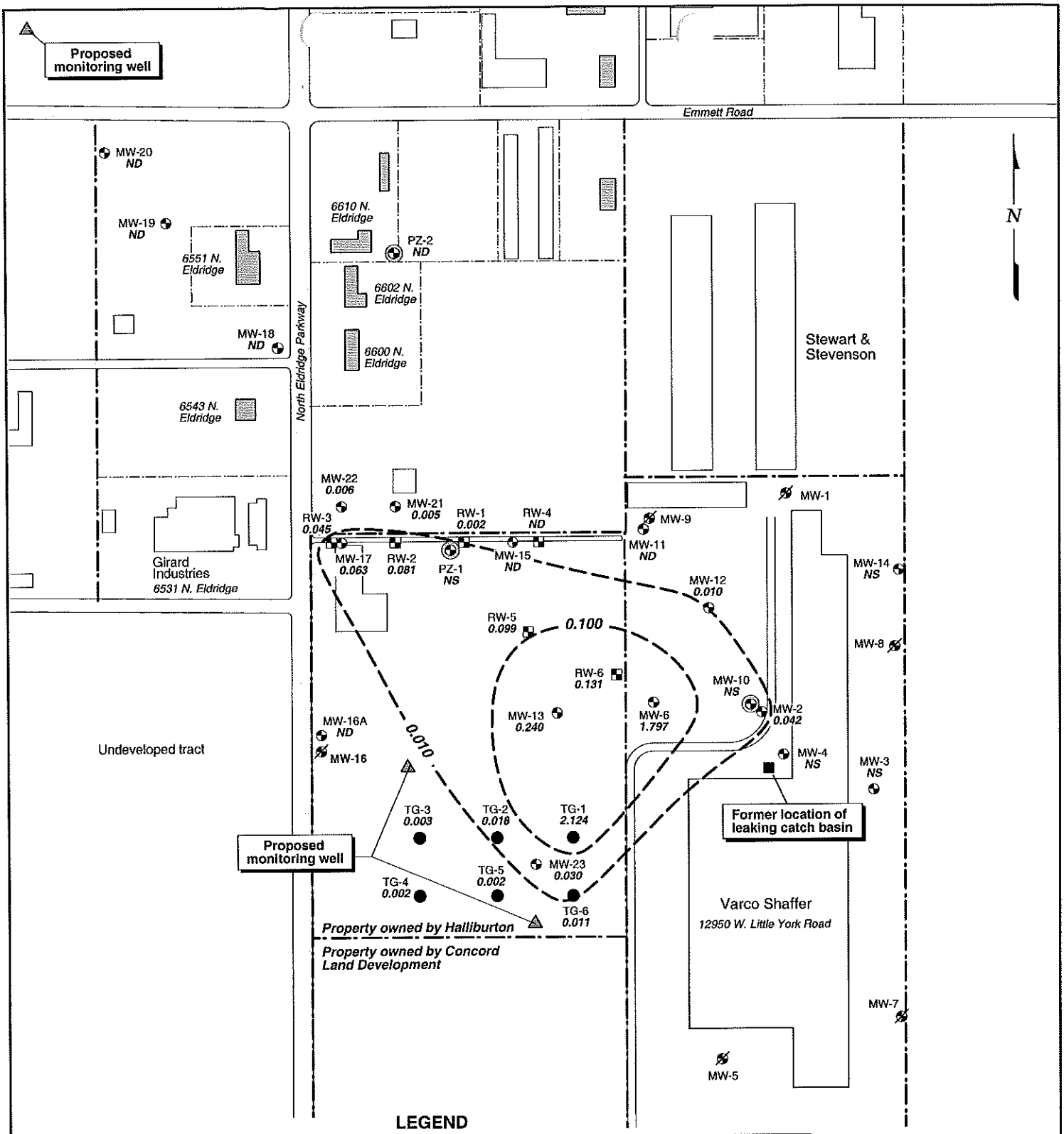


GROUNDWATER SERVICES, INC.

LOG-SCALE PLOT OF CONCENTRATIONS VERSUS TIME IN SELECTED MONITORING WELLS (1996- 2000)

Former Bariod / Shaffer Plant
12950 W. Little York, Houston, Texas

GSI Job No:	G-2348	Drawn By:	DLB
Issued:	1/31/01	Chk'd By:	RAE
Revised:	———	Appv'd By:	JAK
Scale:	As Shown		**FIGURE 5**



LEGEND

- Geoprobe sampling location (Sept. 2000)
- Monitoring well screened to intersect water table in near-surface sand unit
- Monitoring well or piezometer screened near base of near-surface sand unit
- Plugged and abandoned monitoring well
- Recovery well, screened in near-surface sand unit

–0.100– Total VOC concentration contour in mg/L

0.001 Total VOC concentration in groundwater (mg/L)

ND Not detected, at a detection limit of 0.001 mg/L

NS Not sampled

SCALE (ft.)

0 150 300

NOTES:

1) Geoprobe groundwater sampling was conducted September 12, 2000.

2) Groundwater samples were collected from monitoring wells, recovery wells, and PZ-2 during November 13-17, 2000.

GROUNDWATER SERVICES, INC.

GSI Job No.	G-2348	Drawn By:	DLB/CCJ
Issued:	1/31/01	Chk'd By:	RAE
Revised:	____	Aprv'd By:	JAK
Scale:	As Shown	**FIGURE 6**	

PROPOSED MONITORING WELL LOCATIONS

Former Baroid / Shaffer Plant
12950 W. Little York, Houston, Texas

GSI Job No. G-2348
January 31, 2001

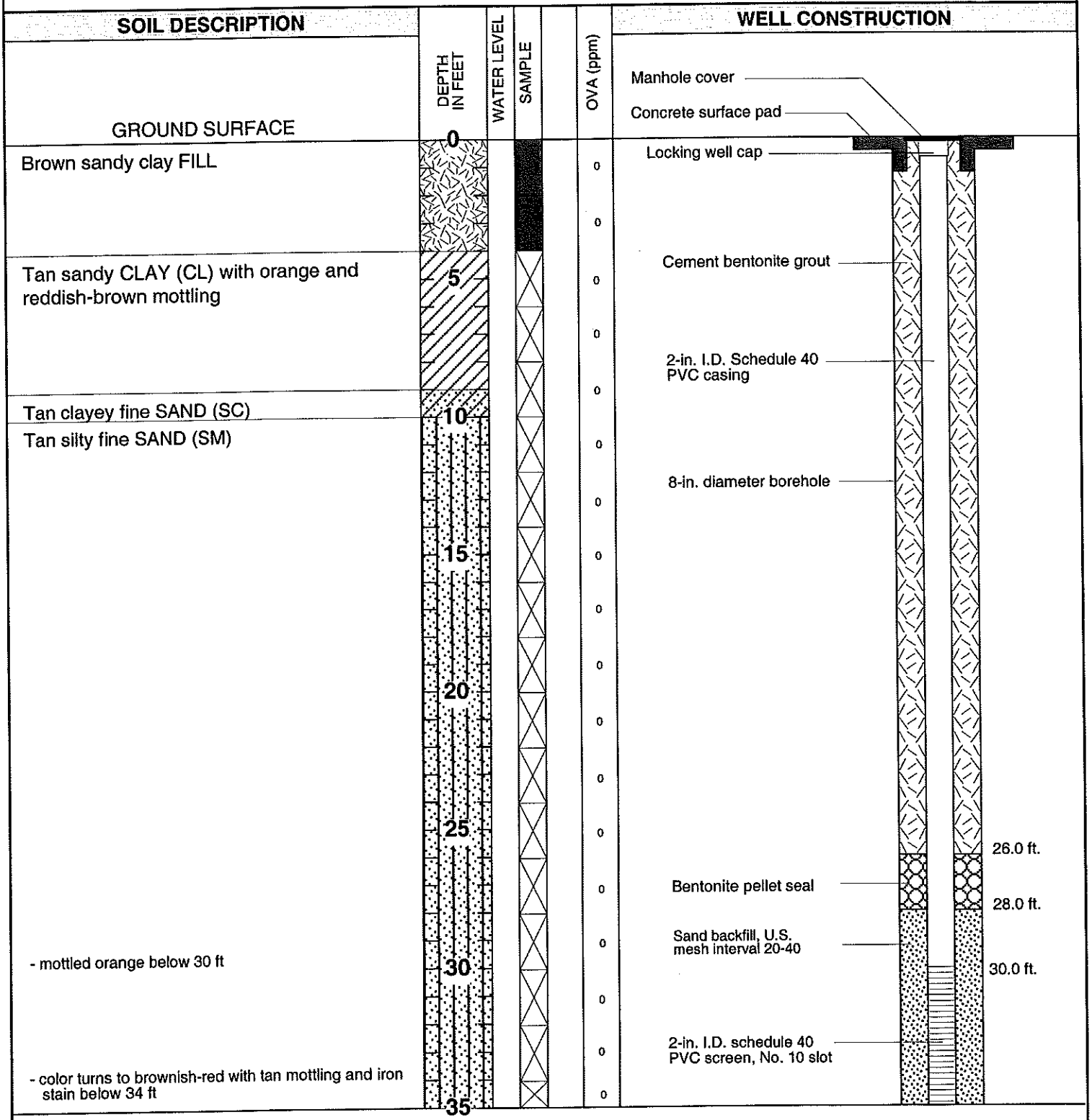
GROUNDWATER
SERVICES, INC.

ATTACHMENT A
WELL LOG/AS-BUILT DIAGRAMS AND STATE OF TEXAS WELL REPORTS

Halliburton Energy Services, Inc.
Former Baroid/Shaffer Plant
Houston, Texas

GEOLOGIST: Richard Edwards
DRILLER: Bruce Milton/Fugro Geosciences, Inc.
DRILLING METHOD: Hollow-stem Auger
HOLE DIAMETER: 8-in

COMPLETION DATE: November 14, 2000
GROUND SURFACE ELEV.: N/A
TOP OF CASING ELEV: 101.01 ft, site datum



Continued on Next Page

Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM
MW-21

Halliburton, Former Baroid/Shaffer Plant
Houston, Texas

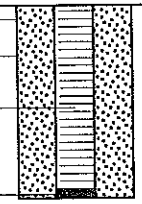
GSI Job No. G-2348
Page 1 of 2
Issued: 1/25/01

FIGURE A.1

GEOLOGIST: Richard Edwards
DRILLER: Bruce Milton, Fugro Geosciences
DRILLING METHOD: Hollow-stem Auger
HOLE DIAMETER: 8 inches

COMPLETION DATE: November 14, 2000
GROUND SURFACE ELEV.: N/A
TOP OF CASING ELEV: 101.01 ft, site datum

SOIL DESCRIPTION	DEPTH IN FEET	WATER LEVEL	SAMPLE	OVA (ppm)	WELL CONSTRUCTION
(Continued)					
Light brown medium-grained SAND (SM)	35			0	8 - in. diam. borehole
				7	Sand backfill, U.S. mesh interval 20-40
	40			5	2-in. I.D. schedule 40 PVC screen, No. 10 slot
Total Depth = 40.0 ft					Threaded bottom cap 40.0 ft
Note: Groundwater seepage encountered at 34 ft depth during drilling.	45				
	50				
	55				
	60				
	65				
	70				



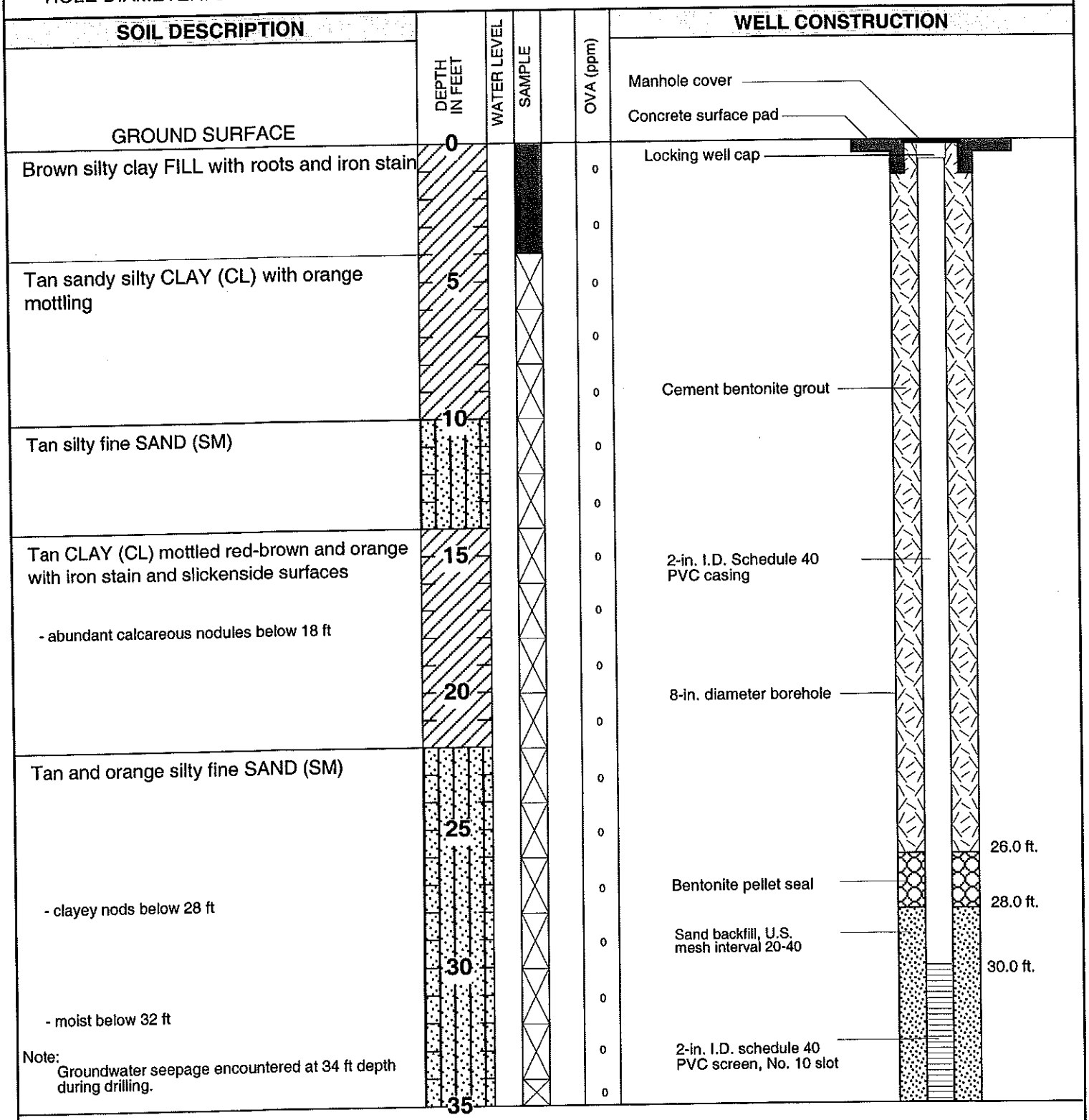
Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM
MW-21
Halliburton, Former Baroid/Shaffer Plant
Houston, Texas

GSI Job No. G-2348
Page 2 of 2
Issued: 1/25/01
FIGURE A.1

GEOLOGIST: Richard Edwards
DRILLER: Bruce Milton/Fugro Geosciences, Inc.
DRILLING METHOD: Hollow-stem Auger
HOLE DIAMETER: 8-in

COMPLETION DATE: November 15, 2000
GROUND SURFACE ELEV.: N/A
TOP OF CASING ELEV: 100.88 ft, site datum



Continued on Next Page

Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM
MW-22

Halliburton, Former Baroid/Shaffer Plant
Houston, Texas

GSI Job No. G-2348

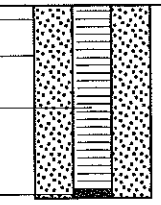
Issued: 1/25/01

FIGURE A.2

GEOLOGIST: Richard Edwards
DRILLER: Bruce Milton, Fugro Geosciences
DRILLING METHOD: Hollow-stem Auger
HOLE DIAMETER: 8 inches

COMPLETION DATE: November 15, 2000
GROUND SURFACE ELEV.: N/A
TOP OF CASING ELEV: 100.88 ft, site datum

SOIL DESCRIPTION	DEPTH IN FEET	WATER LEVEL	SAMPLE	OVA (ppm)	WELL CONSTRUCTION
(Continued)	35				
Tan and orange silty fine SAND (SM)				0	8 - in. diam. borehole
				0	Sand backfill, U.S. mesh interval 20-40
				0	2-in. I.D. schedule 40 PVC screen, No. 10 slot
	40				Threaded bottom cap 40.0 ft
Total Depth = 40.0 ft	45				
	50				
	55				
	60				
	65				
	70				



Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM
MW-22

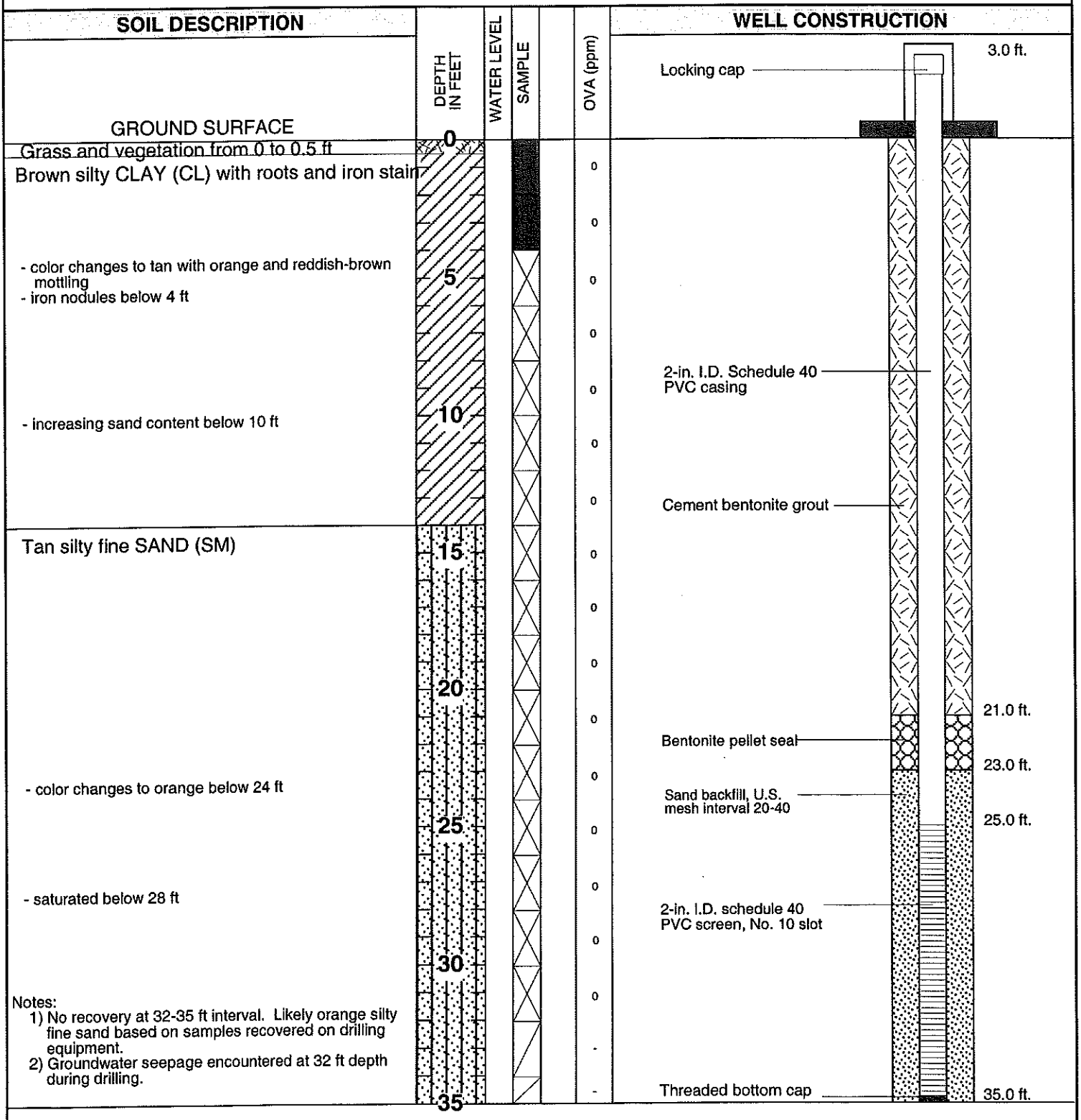
Halliburton, Former Baroid/Shaffer Plant
Houston, Texas

GSI Job No. G-2348
Page 2 of 2
Issued: 1/25/01

FIGURE A.2

GEOLOGIST: Richard Edwards
DRILLER: Bruce Milton/Fugro Geosciences, Inc.
DRILLING METHOD: Hollow-stem Auger
HOLE DIAMETER: 8-in

COMPLETION DATE: November 15, 2000
GROUND SURFACE ELEV.: N/A
TOP OF CASING ELEV: 103.77 ft, site datum



Groundwater Services, Inc.
Houston, Texas

LOG & AS-BUILT DIAGRAM
MW-23

Halliburton, Former Baroid/Shaffer Plant
Houston, Texas

GSI Job No. G-2348
Page 1 of 1
Issued: 1/25/01

FIGURE A.3

Send original copy by certified mail to: **TNRCC, P.O. Box 12157, Austin, TX 78711** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

TDLR
P.O. Box 12157
Austin, TX 78711
512-239-0530

1) **OWNER** Haliburton (Name) **ADDRESS** 4100 Clinton Drive (Street or RFD) Houston (City) TX (State) 77020 (Zip)

2) **ADDRESS OF WELL:** County Harris 6600 N. Eldridge Parkway (Street or RFD) Houston (City) TX (State) 77041 (Zip) GRID # 65-12-1

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5) **Lat: 29-52-08** **Lon: 95-36-33**

6) WELL LOG: MW-21
Date Drilling: Started November 14 2000 Completed November 14, 2000

DIAMETER OF HOLE		
Dia.. (in.)	From (ft.)	To (ft.)
8	Surface	40

7) DRILLING METHOD (Check): ☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☑ Other Hollow-stem Augers

N

From (ft.)	To (ft.)	Description and color of formation material
0	4	Brown Sandy Clay
4	9	Tan Sandy Clay
9	10	Tan Clayey Fine Sand
10	34	Tan Silty Fine Sand
34	35	Brownish-red Fine Sand
35	40	Light Brown Medium Sand

0305-0333

(Use reverse side if necessary)

8) Borehole Completion (Check): ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other 20-40 Sand
If Gravel Packed give interval ... from 28 ft. to 40 ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
2	N	PLastic	30	40		0.010
2	N	Plastic	0	30	Riser	

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from 0 ft. to 26 ft. No. of sacks used 6
ft. to ft. No. of sacks used
Method used Tremie
Cemented by
Distance to septic system field lines or other concentrated contamination ft.
Method of verification of above distance

10) SURFACE COMPLETION
☑ Specified Surface Slab Installed (Rule 338.44(2)(A)]
☐ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL
Static Level 34 ft. below land surface Date 11-14-00
Artesian flow gpm Date

12) PACKERS: Type: N/A Depth:

13) TYPE PUMP: N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet, etc., ft.

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

15) WATER QUALITY: N/A
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Fugro Geosciences, Inc. (Type or print) **WELL DRILLER'S LICENSE NO.** 4926-M

ADDRESS 6105 Rookin (Street or RFD) Houston (City) Texas (State) 77074 (Zip)

(Signed) Bruce M. Tom (Licensed Well Driller) **(Signed)** (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

Send original copy by certified mail to: **TNRCC, P.O. Box 12157, Austin, TX 78711** *Please use black ink.*

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

TDLR
P.O. Box 12157
Austin, TX 78711
512-239-0530

1) **OWNER** Haliburton (Name) **ADDRESS** 4100 Clinton Drive (Street or RFD) Houston (City) TX (State) 77020 (Zip)

2) **ADDRESS OF WELL:** County Harris 6600 N. Eldridge Parkway (Street or RFD) Houston (City) TX (State) 77041 (Zip) GRID # 65-12-1

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5) **Lat: 29-52-08** **Lon: 95-36-33** N

6) WELL LOG: MW-22
Date Drilling:
Started November 15 2000
Completed November 15, 2000

DIAMETER OF HOLE

Dia.. (in.)	From (ft.)	To (ft.)
8	Surface	40

7) DRILLING METHOD (Check): ☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☑ Other Hollow-stem Augers

From (ft.)	To (ft.)	Description and color of formation material
0	4	Brown Silty Clay
4	10	Tan Sandy Silty Clay
10	14	Tan Silty Fine Sand
14	22	Tan Clay
22	40	Tan and Orange Silty Fine Sand

0305-0333

(Use reverse side if necessary)

8) Borehole Completion (Check): ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other 20-40 Sand
If Gravel Packed give interval ... from 28 ft. to 40 ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
2	N	PLastic	30	40		0.010
2	N	Plastic	0	30	Riser	

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from 0 ft. to 26 ft. No. of sacks used 6
ft. to ft. No. of sacks used
Method used Tremie
Cemented by
Distance to septic system field lines or other concentrated contamination ft.
Method of verification of above distance

10) SURFACE COMPLETION
☑ Specified Surface Slab Installed (Rule 338.44(2)(A)]
☐ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL
Static Level 34 ft. below land surface Date 11-15-00
Artesian flow gpm Date

12) PACKERS: Type: N/A Depth:

13) TYPE PUMP: N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet, etc., ft.

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

15) WATER QUALITY: N/A
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Fugro Geosciences, Inc. (Type or print) **WELL DRILLER'S LICENSE NO.** 4926-M

ADDRESS 6105 Rookin (Street or RFD) Houston (City) Texas (State) 77074 (Zip)

(Signed) Bruce Mitton (Licensed Well Driller) **(Signed)** (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

Send original copy by certified mail to: TNRCC, P.O. Box 12157, Austin, TX 78711

Please use black ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

TDLR
P.O. Box 12157
Austin, TX 78711
512-239-0530

1) **OWNER** Haliburton (Name) **ADDRESS** 4100 Clinton Drive (Street or RFD) Houston (City) TX (State) 77020 (Zip)

2) **ADDRESS OF WELL:** County Harris 6404 N. Eldridge Parkway (Street or RFD) Houston (City) TX (State) 77041 (Zip) GRID # 65-12-1

3) **TYPE OF WORK (Check):**
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) **PROPOSED USE (Check):** ☑ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5) **Lat: 29-52-00** **Lon: 95-36-25** N

6) **WELL LOG: MW-23**
Date Drilling:
Started November 15 2000
Completed November 15, 2000

DIAMETER OF HOLE		
Dia.. (in.)	From (ft.)	To (ft.)
8	Surface	35

7) **DRILLING METHOD (Check):** ☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☑ Other Hollow-stem Augers

From (ft.)	To (ft.)	Description and color of formation material
0	4	Brown Silty Clay
4	14	Tan, Orange and Reddish-brown Silty Clay
14	24	Tan Silty Fine Sand
24	35	Orange Silty Fine Sand

0305-0333

(Use reverse side if necessary)

8) **Borehole Completion (Check):** ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other 20-40 Sand
If Gravel Packed give interval ... from 23 ft. to 35 ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
2	N	Plastic	25	35	0.010
2	N	Plastic	0	25	Riser

9) **CEMENTING DATA** [Rule 338.44(1)]
Cemented from 0 ft. to 21 ft. No. of sacks used 5
ft. to ft. No. of sacks used
Method used Tremie
Cemented by
Distance to septic system field lines or other concentrated contamination ft.
Method of verification of above distance

10) **SURFACE COMPLETION**
☑ Specified Surface Slab Installed (Rule 338.44(2)(A)]
☐ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☐ Approved Alternative Procedure Used [Rule 338.71]

11) **WATER LEVEL**
Static Level 32 ft. below land surface Date 11-15-00
Artesian flow gpm Date

12) **PACKERS:** Type: N/A Depth:

13) **TYPE PUMP:** N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet, etc., ft.

14) **WELL TESTS:** N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

15) **WATER QUALITY:** N/A
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Depth of strata
Was a chemical analysis made? ☐ Yes ☐ No

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COMPANY NAME Fugro Geosciences, Inc. (Type or print) **WELL DRILLER'S LICENSE NO.** 4926-M

ADDRESS 6105 Rookin (Street or RFD) Houston (City) Texas (State) 77074 (Zip)

(Signed) Bruce Mitton (Licensed Well Driller) **(Signed)** (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.